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ABSTRACT

This meeting site guide for Lexington, Kentucky and the Bluegrass region around Lexington illustrates why the state of Kentucky and this region are excellent examples of how geography plays out on the land, how regions emerge, and how human events and processes, in the context of the physical environment, lead to differentiation and distinction, and long-term boundary maintenance. This guide also shows how and why the Inner Bluegrass' central location and excellent situation, in both Kentucky and the eastern United States, have recently become key reasons for businesses and services to locate in the region. The introduction (Richard Ulack) focuses on: (1) "Early Settlement of the Inner Bluegrass"; (2) "From the 1790s to Today"; and (3) "Inner Bluegrass Attractions." Chapter 1 titled "Creating the Bluegrass Environment" (John F. Watkins and Gary O'Dell) describes Kentucky's physical regions. Chapter 2, "Creating Places and Regions," includes the following: (1) "The Countryside" (Karl B. Raitz); (2) "The Region's Towns and Cities" (Richard Ulack); (3) "The Population of the Inner Bluegrass" (Richard Ulack); (4) "Bluegrass Culture" (Karl B. Raitz); and (5) "Lexington" (Richard Schein). Chapter 3, "Interactions and Connections," has the following: (1) "Lexington as Center for Transportation, Communications, and Information" (Stanley D. Brunn); (2) "Modern Lexington as Regional Center" (Richard Schein); (3) "Horse Breeding and Racing" (Karl B. Raitz); and (4) "Automobiles and the Japanese Connection: Toyota in Kentucky" (Susan Roberts). Chapter 4, "Learning Activities" (Nijel Clayton; Kate Greer Fischer), contains the following: (1) "Kentucky's Physical Landscapes"; (2) "Tobacco: King or Curse?" (3) "Studying Land Use through City Directories"; (4) "Black Settlement Patterns in the Bluegrass"; (5) "The Horse Industry in Kentucky"; and (6) "On the Road Again...." Maps, tables, and figures accompany the text." Contains 22 references. (EH)

Title No. 10

ED 383 629

PATHWAYS IN GEOGRAPHY
Guide

National Council for
graphic Education

Lexington and Kentucky's Inner Bluegrass Region

Richard Ulack, Karl B. Raitz, and
Hilary Lambert Hopper, Editors

Prepared for the 78th annual meeting of the
National Council for Geographic Education
Lexington, Kentucky
November 2-5, 1994

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A PATHWAYS IN GEOGRAPHY
Site Guide

Lexington and Kentucky's Inner Bluegrass Region

Richard Ulack, Karl B. Raitz, and
Hilary Lambert Hopper, Editors

The National Council for
Geographic Education

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Richard Ulack, Karl B. Raitz and Hilary Lambert Hopper, Editors
Richard Gilbreath and Gyula Pauer, Cartographers—University of Kentucky Cartography Laboratory

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INTRODUCTION

Richard Ulack

This annual meeting site guide is the second annual meeting site guide in the PATHWAYS IN GEOGRAPHY series. It illustrates why the state of Kentucky and its Bluegrass region are excellent examples of how geography plays out on the land, how regions emerge, and how human events and processes, in the context of the physical environment, lead to differentiation and distinction, and long-term boundary maintenance. This guide also shows how and why the Inner Bluegrass' central location and excellent situation, in both Kentucky and the eastern United States, have recently become key reasons for businesses and services to locate in the region.

Of Kentucky's six major physical regions (Fig. 1), the best-known is the Bluegrass Region. A place name that is recognizable to outsiders far and wide, the Bluegrass conjures images of grassy rolling hills, thoroughbred horses, and beautiful farms. On the region's phosphatic Ordovician limestones have developed some of the most fertile soils in the world. Sinkholes dot the gently rolling surface, many streams run underground, and the area is laced with caves; together these features constitute one of the best American examples of karst topography. In addition to horses and cattle, the area's farms also produce burley tobacco and corn and, in the past, hemp. Lexington, at the heart of the Bluegrass, is the world's largest market for burley tobacco and in the late fall and winter there is a prevalent aroma of tobacco being processed in the city's warehouses. The Bluegrass is also noted for its bourbon whiskey, produced in a number of counties, some of which are still dry (where it is illegal to sell alcoholic beverages).

The Bluegrass region is encircled on the north by the Ohio River and on the east, south, and west by the Knobs region. The Bluegrass includes three topographic subregions called the Outer Bluegrass, the Eden Shale Hills, and the Inner Bluegrass. The state's three major metropolitan areas—Louisville, the northern Kentucky cities adjacent to Cincinnati (Covington, Newport, and Florence, among other, smaller places), and Lexington—stand at the apexes of what is called the Golden Triangle, an area that comprises the majority of the state's population and most of its industrial and commercial activity.

Our concern here is with the Inner Bluegrass subregion, an area that includes all or parts of eleven counties: Anderson, Bourbon, Boyle, Clark, Fayette, Franklin, Harrison, Jessamine, Mercer, Scott, and Woodford (Fig. 1). The population of these eleven counties numbered more than 465,000 in 1990, accounting for 12.5 percent of Kentucky's population of 3.7 million. Lexington is the largest Inner Bluegrass city; also within the eleven-county subregion is the state capital, Frankfort, and the county seats of Lawrenceburg (Anderson Co.), Paris (Bourbon), Danville (Boyle), Winchester (Clark), Cynthiana (Harrison), Nicholasville (Jessamine), Harrodsburg (Mercer), Georgetown (Scott), and Versailles (Woodford).

Figure 1: Kentucky's Physical Regions and the Inner Bluegrass

SOURCE: adapted from *The Geological Story of Kentucky*, Preston McGrain, 1983

Early Settlement of the Inner Bluegrass

The region, first settled by white hunters, trappers, and adventurers during the 1770s, became and has remained one of the state's most productive agricultural regions based on its fertile soils and abundant precipitation (about 45" annually). Another group of settlers began arriving during the late 1700s and these included wealthy planters from the Virginia and Carolina Piedmont who brought with them their slaves, the region's first African-Americans. Perhaps the best-known early white settler was Daniel Boone, although he was not among the first to enter the region. Farmers soon produced livestock and a variety of crops, including tobacco, corn, hay, and hemp, in sufficient quantity to market to New Orleans and east coast cities. The livestock raising tradition has been maintained; today cattle and horses are the second and third leading (legal) agricultural commodities in the state, after tobacco.

From the 1790s to Today

Named after the site of the Revolutionary War battle in Massachusetts, the settlement's first permanent residents arrived in 1779 and in 1782 Lexington was incorporated as a town. Growing rapidly, by the early nineteenth century it was one of the largest and most cultured places west of the Alleghenies and was known as the "Athens of the West." Indeed, the oldest college west of the Alleghenies (and the sixteenth oldest in the U.S.), Transylvania, was established in 1780; the first classes in Lexington were held in 1789. Today, Lexington remains a center of learning. In addition to Transylvania University, the University of Kentucky is in Lexington. Founded as a land-grant institution in 1865, it is the Commonwealth's premier research institution.

During the nineteenth century, the river towns of Cincinnati and Louisville gained rapidly in size and economic importance and Lexington lost some of its luster; but today the city is the state's second largest with a merged Lexington-Fayette County Urban Government serving a population of more than 225,000 (Lexington is also the central city for the six-county Metropolitan Statistical Area, or MSA, that had a population of nearly 350,000 in 1990). In addition to its universities and state government, major employers in the immediate region include the Toyota Motor Manufacturing (TMM) plant that manufactures Camry automobiles in Georgetown, Fruit of the Loom (underwear) in Frankfort, Rand McNally (map and book publishing) in Versailles, and Lexmark (laptop computers, keyboards, and printers), Square D (electrical equipment), Trane (air conditioning and heating), and Procter and Gamble (peanut butter) in Lexington. As the urban center that serves much of central and eastern Kentucky, Lexington also boasts a large number of health professionals and health facilities, and other service sector businesses.

Inner Bluegrass Attractions

Within the city are a number of historic attractions, including Ashland, the home of Lexington's most famous citizen, Henry Clay (although a few might say the city's most famous citizen was Adolph Rupp, the former University of Kentucky basketball coach!). At one time a country estate and farm where thoroughbreds grazed, Ashland (rebuilt by his son James after Clay's death in 1852) and about three acres are today preserved as a National Historic Landmark. Other historic places (and all within easy walking distance of the Hyatt Regency) include the Mary Todd Lincoln House (wife of President Lincoln, she was born in Lexington in 1818), the Hunt-Morgan House, the Lexington Opera House, and historic neighborhoods including Gratz Park and South Hill.

The Inner Bluegrass region is perhaps best known for its horse-related attractions including some 200 thoroughbred and standard bred horse farms that cluster around Lexington. Just a few years ago, a number of these horse farms were open to the public but for a variety of reasons (including fires that were accidentally set by visitors) most of the farms are no

longer open although special arrangements can be made to visit some farms. Two race tracks, Keeneland and the Red Mile, are located in the city. Well worth a visit, the Kentucky Horse Park between Lexington and Georgetown along I-75, provides much information and history on all aspects of the horse industry and includes films, a museum, and a working farm tour.

Many other Inner Bluegrass sites merit attention, including Daniel Boone's grave and the spectacular state capitol in Frankfort; the Shaker Village at Pleasant Hill, a wonderfully-restored Shaker community that includes twenty-seven buildings and numerous craft-making exhibits; a variety of bourbon distilleries including Wild Turkey, Maker's Mark, Ancient Age, and Old Taylor; Harrodsburg, Kentucky's first permanent white settlement (founded by James Harrod and others in 1774); and Fort Boonesborough, Kentucky's second settlement (founded by Daniel Boone and others in 1775). Both Harrodsburg and Fort Boonesborough have historic reconstructions of the original forts on exhibit.

1

CREATING THE BLUEGRASS ENVIRONMENT

Kentucky's Physical Regions and the Inner Bluegrass

John F. Watkins and Gary O'Dell

Kentucky's physical geography is diverse. Within its boundaries one may find forested mountains of the Appalachian Plateau, rocky gorges and tumbling waterfalls, broad valleys framing several major rivers, and fertile plains that support an array of agricultural activities. Kentucky's weather is equally diverse. The summer heat may bring temperatures above 100°F, whereas winter lows often reach below zero. Thunderstorms result in torrential rain, hail, and tornadoes, and winter ice storms and deep snow are not uncommon. Yet the climate is generally mild, with fewer than 86 days out of the year having any form of precipitation, and for much of the year the skies are fairly clear. All of these characteristics have long worked in concert first to attract, and subsequently support, both people and commerce. Gilbert Imlay, an early traveler to the area, wrote in 1792, "Everything here assumes a dignity and splendor I have never seen in any other part of the world." Residents and visitors from that time forward have shared a similar sentiment.

North-central Kentucky serves as a perfect home base for exploring the state's many physical features; this guide will focus primarily on the Bluegrass Region, near the center of which is Lexington. We begin with an overview of Kentucky's geologic origins, fundamental to the existence of myriad surface and subsurface features. Next is a survey of the karst landscapes of the Inner Bluegrass, and we end with a glimpse of a few environmental issues that emerge from the area's unique physical geography.

Geologic and Geomorphic Character of the Bluegrass

The history of Kentucky's landscapes and underlying bedrock dates back well over half a billion years. During the early Paleozoic Era, Kentucky, and most of the southeastern United States, was covered by ocean. As a consequence, a variety of lime oozes, shell fragments, muds, and sands accumulated across the area, all of which eventually solidified into the respective limestones, mudstones, shales, and sandstones found today. The variations in rock types most often reflect periodic changes in sea level, which influenced both the sediment particle size (such as silts, sands, and gravels) and the extent of chemical precipitates (such as the calcium carbonate of limestone) that were deposited. Within many of these rocks can be found a host of fossilized marine life, and the Falls of the Ohio (located at Louisville but accessible from Indiana) is well known because of its exposed coral reef limestones—and abundant fossils—dating back to the Devonian and Silurian periods (400 to 430 million years ago).

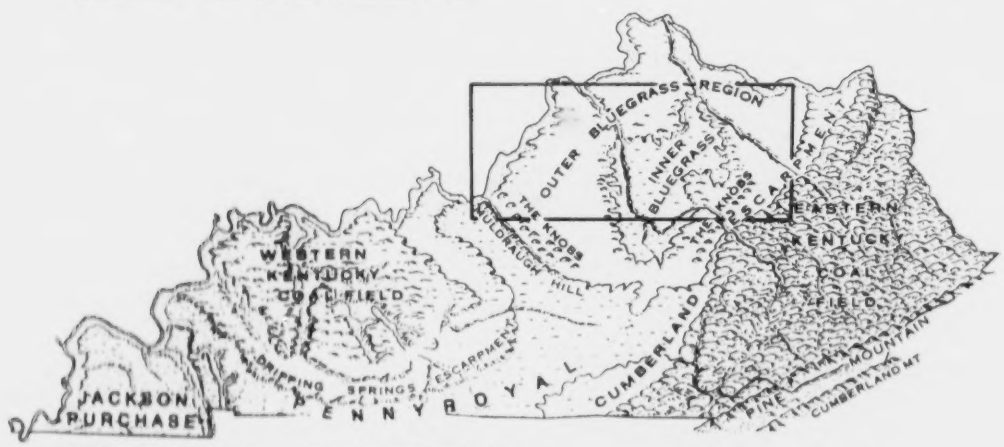
Also important in Kentucky's geologic past are sea level changes that resulted in the

emergence of land surfaces. During such periods (primarily about 335 years ago during the Pennsylvanian Period), land-dwelling animals and plants thrived. Several wetland areas accumulated organic matter with the warm humid climates of the time, and later rises in sea level covered this material with fine sediments that effectively stopped decomposition. Today we see the geologic results of this sequential exposure and inundation in the coal fields of eastern and western Kentucky.

The Bluegrass Region comprises the north-central portion of the state, formed through the processes of broad warping and erosion. During the middle Paleozoic era (approximately 415 million years ago during the Silurian age) the pressures of crustal movement caused a major uplift extending from what is now Cincinnati southwest towards Nashville, Tennessee. This uplift, called the Cincinnati Arch, temporarily divided the major eastern and western geologic basins with respect to marine and terrestrial deposits. Warping continued for approximately another 15 million years, and because this arch was exposed to atmospheric forces, upland strata were the first to be broken down through the processes of weathering. Today, the uppermost sandstone layers have locally been eroded to reveal much older shales and limestones that characterize the region's bedrock, exposed along roadcuts and stream valleys (Fig. 2). Continued lowering of sea level and continental uplift eventually exposed the entire state, and the processes of weathering,

Figure 2: Physiographic Diagram of Kentucky and the Bluegrass Region

SOURCE: John Watkins, University of Kentucky, 1994



SOURCE: *The Geological Story of Kentucky*, by Preston McGrain, 1983

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especially stream erosion, then became major players shaping the landscape statewide.

Three distinct areas comprise the Bluegrass Region: the Outer Bluegrass, the Inner Bluegrass, and the Eden Shale Hills. These areas become quite apparent when driving in virtually any direction away from Lexington, which stands in the approximate center of the Inner Bluegrass. The gently rolling landscape immediately surrounding Lexington is based on Middle Ordovician Limestones, which are among the oldest rocks found in the state. These limestones happen to have relatively high levels of phosphorus, and the soils that have developed in the area tend to be deep and quite fertile. Consequently, agriculture here has been very successful. So too has the horse industry, which relies on the supplemental nutrition provided by grasses grown in local soils.

Traveling west or south away from Lexington one soon encounters the Kentucky River, which crosses the Inner Bluegrass and has carved a deep meandering valley. The river can be seen in many places, including U.S. Highways 25, 27, 62, and 68, and Clays Ferry (accessible off Interstate 75 south of Lexington). The river has entrenched itself 300 to 400 feet below the level of the central Kentucky limestone plain and the resulting valley palisades are quite dramatic.

Beyond the river there is an evident increase in elevation that marks the Eden Shale Hills, which is a transition to the Outer Bluegrass area. The rocks of this area are, like those in the Inner Bluegrass, also Ordovician in age, but are somewhat younger and quite different in lithology. Comprised of thinly bedded shales and limestones, these rocks are less resistant to erosion. This means that the Eden Shale rocks have been eroded into hills and steep slopes, and soils are infertile yellowish clays. Although the shale area was cleared and farmed as recently as the 1930s, most slope land has reverted to woodland and the few remaining farms raise tobacco or pasture stock on narrow valley bottom fields. Farther west and south (or east) the shale gives way to younger Ordovician limestones and a gently rolling plain with fertile reddish soils. This is the Outer Bluegrass. Although farming in the Outer Bluegrass is not as profitable as it is in the Inner Bluegrass, significant amounts of tobacco, corn, grains, cattle, hogs, and dairy products are produced.

Moving west, south, or east, one can immediately identify the outermost boundary of the Bluegrass by the presence of the Knobs, an irregular belt of relatively isolated tree-covered conical hills. The knobs are remnants of the retreating Pottsville Escarpment on the east and south, and Muldraugh's Hill on the west. They are capped by highly resistant conglomerate or limestone that protects them from erosion. They can be viewed at Cave Run Lake (south of Interstate 64 near Morehead), just east of Berea, or south and west of Louisville. The southern Knobs are especially rich in geodes. Beyond the Knobs stand limestone and conglomerate-capped escarpments that mark the transition into the state's dissected plateau regions.

Bluegrass Weather and Climate

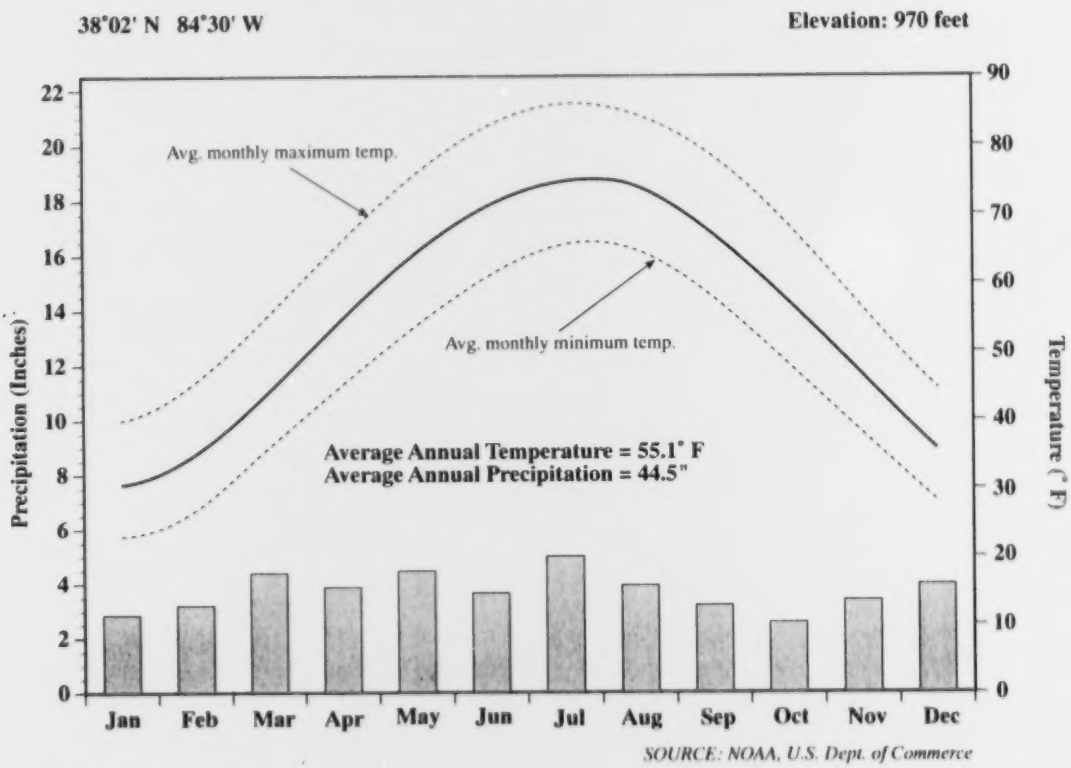
From a geologic perspective, central Kentucky's climate has demonstrated the extremes from being nearly tropical in nature (as during the Pennsylvanian Epoch when coal deposits formed) to being almost subpolar during the Pleistocene Epoch that brought Illinois- and Wisconsin-age glaciers as far south as the Ohio River. Such variations in temperature and precipitation had tremendous effects on Kentucky's physical landscape. Today, however, such variation is only found within a single year, and monthly averages yield a climate that is best described as Mild Midlatitude (or Humid Subtropical—Cfa—according to the Köppen-Geiger system). Within a single year, temperatures can normally range from a winter monthly low of about 31°F to a summer high of 76°F, and precipitation tends to amount to at least two inches per month, with a slight summer peak and an annual total

of just over 44 inches (Fig. 3). Overall there is an annual moisture surplus in the Bluegrass, and only the exposed limestone bedrock prevents local soils from becoming acidic, a characteristic of most mid-latitude soils.

Like other mild mid-latitude climates, the Bluegrass experiences a diversity of weather. With a location of about 38° north of the equator, the Bluegrass is positioned in a virtual battleground of contrasting air masses. During the summer months warm, moist air masses move north from the Gulf of Mexico and dominate the region, whereas winter months experience the influence of cool, dry air masses from the north. An important fact is that each of these air masses usually tends to be moderated by the time they approach Kentucky and temperatures are commonly warm—not hot, or cool—not cold. As a consequence, the normal weather of the Bluegrass is quite comfortable. Yet winter or summer extremes occur and often produce frozen water pipes or high air conditioning bills.

An important feature of an eastern continental mid-latitude location such as the Bluegrass is that relatively small changes in the atmosphere can cause dramatic changes in local weather. Slightly stronger contrasts in air masses, for example, may result in severe storms along cyclonic fronts, and numerous ice storms and tornado outbreaks during the transition months between winter and summer attest to this influence. Indeed, close observation of Lexington trees will clearly show the effects of the early spring ice storms of 1994, during which nearly 15,000 Lexington households were left without power for three days. Slight changes in upper atmosphere jet stream location can also cause extremes in temperature; the record low temperature is -21°F (recorded in January of 1963) when an Arctic air mass reached the Bluegrass during

Figure 3: Climograph for Lexington, KY



an unusual southerly track of the polar jet. Monthly highs broke records during June and July of 1988 when the polar jet was far to the north and a high pressure cell brought 100+ °F temperatures and drought conditions to the region.

Inner Bluegrass Karst Landscapes

Weather and climate characteristics across millennia have caused dramatic alteration of the Bluegrass landscape. Perhaps the most visible alterations, within the Inner Bluegrass at least, has been the development of a distinct karst topography. Surface features associated with karst landscapes are principally attributed to solution weathering of calcium-based rocks such as limestone. For these features to have developed, precipitation and groundwater must be slightly acidic in order to react with—and break down—limestone. This acidity is attained first as rainfall absorbs atmospheric carbon dioxide, and second as moisture absorbs carbon dioxide concentrated in the open spaces of soils. The absorption of this gas by water results in a weak carbonic acid, which readily decomposes limestone.

Approximately fifty percent of Kentucky has limestone or dolomite at, or very near, the surface, and virtually all of the Inner Bluegrass has this type of bedrock. Limestone is not permeable to water, yet tends to have both horizontal weaknesses (bedding planes) and vertical openings (fissures and faults) through which water passes. Over time these pathways become enlarged by chemical dissolution, which, in turn, allows increasing water flow. The limestone becomes a vast plumbing system of tubes and conduits that carries water under the influence of gravity to lower elevations.

Surface streams in karst regions, including the Bluegrass, are often limited in extent or even absent. The water that would normally be carried by surface streams instead flows underground, out of sight and often out of reach. Only major streams flow across the surface and many, like the Kentucky River, are fed more by underground sources than surface tributaries. A number of surface stream networks disappear within a short distance, as water either gradually drains into bedrock fissures within the streambed or disappears altogether into swallets and sinkholes that lead directly to deeper bedrock conduits.

The notion of caves as features resulting from solution processes is a concept of human perception, defined in terms of human body dimensions. As water in the karst landscape flows through conduits of all sizes from narrow cracks to passages tens-of-feet high and wide, the proportion of these conduits that we call caves are simply those large enough for humans to walk, crawl, or painfully squirm into. Most conduits are far too small to permit human entry and so we do not perceive them as caves. Nevertheless, they are the most important drainage mechanism in karst landscapes. Underground drainage ultimately emerges as springs at the level of the nearest surface stream that is large and deep enough to avoid underground capture. This is known as local base level. The regional base level for groundwater in the Inner Bluegrass is the Kentucky River, trenched in its steep-sided gorge nearly four hundred feet below Lexington's elevation.

Groundwater emerges as springs along the banks of Kentucky River tributaries such as North and South Elkhorn Creeks, Hickman Creek, Jessamine Creek, and other streams. The region's first explorers and settlers were impressed by the number of free-flowing springs that watered the countryside. Many of the larger springs became landmarks and were used to navigate through the sparsely-settled frontier wilderness. Since settlers would make their living by agriculture, a good water supply was of paramount importance for livestock, crops, and domestic use. Springs were thought to provide the very finest sort of water, and land claims were often based around a good spring.

A farm's residence was usually built near the best spring for easy access. Protective enclosures, or spring houses, could be very simple or as elaborate as the owner's taste and budget permitted. One spring house in residential Lexington in the early nineteenth century was a two-story structure of brick, 10 by 20 feet; the upper story was used as a smokehouse. The rural Bluegrass region today is dotted with hundreds of stone spring houses, now primarily used for watering stock.

Community site selection in the Inner Bluegrass was often influenced strongly by the presence of a large spring. Inner Bluegrass communities founded in the 1770s at spring locations include Lexington, Georgetown, and Harrodsburg. Although most cities and towns in the state are today served by municipal water supplies derived from surface water, a few are still dependent upon the same spring that marked their original site.

Karst features have also played an economic role in the region's history. During the War of 1812, Lexington became the market center for saltpeter mined from caves and rock shelters in the Mississippian limestone belt and this became the bases for local gunpowder manufacturing. A number of early industries used springs, either for water-powered mills or as a source of water. The best-known example of a spring-dependent, early Kentucky industry is bourbon whiskey distillation. The first bourbon whiskey made in the state was reported to be that made in 1789 by Craig and Parker at Georgetown's Royal Spring.

Today, with increased citizen concern about the purity of drinking water, national sales of bottled water have dramatically increased. The image of pure spring water (as we shall later see, an image far from the truth) has supported a growing number of bottling companies in this country and abroad, including one in the Inner Bluegrass south of Lexington. The water they distribute is pure, but has been reconstituted and is natural only in a general sense.

The Central Kentucky karst is identified by place names. Many towns have a Spring Street. Lexington has its own Spring Street, as well as Russell Cave Road, Cave Hill Lane, Boiling Springs Drive, Cave Creek, Deep Springs Subdivision, the Springs Motel, and other similar names. In the countryside are two Cave Spring Farms and one Caveland Regional Farm.

Environmental Issues

Historically, builders and city planners have given little attention to the special problems of development on karst landscapes. Lexington is sited atop a fairly well-developed karst terrain. Over two centuries of city growth many karst features have been indiscriminately covered up during construction or used as inlets for storm drainage disposal. These and other practices have produced various problems including surface and groundwater pollution, building foundation instability, and localized flooding.

Groundwater in conduit flow systems tends to move rapidly close to the surface, almost at surface rates, and to undergo little filtering effect during its passage underground. Introduced contaminants can end up ten miles (16.1 km) away in a day, with little reduction in impurities. During the nineteenth century, ignorance of the relationship between contaminated water and disease led to several cholera epidemics. At present we consider ourselves less at risk to water-borne diseases because of modern water treatment facilities, but a number of contaminants are difficult to remove. In addition, groundwater supplies 90 percent of Kentucky's rural residents. Obviously, much is at stake in maintaining groundwater quality.

Groundwater contamination in an urban area takes many forms. Fayette County, for example, receives mixed contaminants from both agricultural and urban sources. The

usual form of pollutant entry into groundwater is directly through sinkholes and stream bed swallets, and by soil infiltration.

Sinkholes seem to invite abuse. People fill them in to make the ground level. This is often accomplished by dumping junk automobiles, dead animals, and trash and refuse of all kinds. On the grand scale, sinkholes have been erased *en masse* by large subdivision developments where the natural land form is altered to conform to the design of developers. Yet, the sinkholes remain functional, regardless of how the surface has been rearranged. Over time filled sinkholes often redevelop, at the expense of whatever structures may be situated above. A building erected over a sink that has been artificially leveled may have a portion of its foundation resting in deeper soil than other parts. The foundation will inevitably settle unevenly and may crack and shift. In karst landscapes, the ground can collapse. Visualize a vertical shaft in the limestone bedrock, thirty feet deep and eight feet in diameter. Sitting on top of the shaft, hiding it from view, is a thick plug of clay and sod, like a cap on a milk jug. From the surface it looks just like the rest of the land. After a heavy rain, the soil bridge may cave in, leaving a gaping chasm. The city of Bowling Green in western Kentucky is plagued by such events forty or fifty times each year. In Lexington this phenomenon is much less frequent. Some sinkhole collapses are natural. Others are brought on by increased runoff, the result of covering the surface with asphalt or houses.

Grading the landscape to suit the needs of a particular development may adversely affect area drainage patterns. Sinkholes, especially sinking streams, are often used as convenient inlets for storm drainage. They often have runoff diverted to them far in excess of their flow capacities. Flooding occurs as storm water piles up faster than it can penetrate into the aquifer. This has occurred in several Lexington neighborhoods. Many people have unknowingly bought homes in flood zones.

In 1985, Lexington enacted a Sinkhole Ordinance, and as a result, land development must take karst features into account. Sinkholes and adjacent land may be classified to exclude any surface development in the form of structures or even the filling in of low areas. Most significant, sellers are required to give notice to a potential purchaser or lender that a particular property may be subject to future sinkhole problems.

Lexington, like many cities nationwide, demonstrates a high level of concern for environmentally sound land use. This concern is especially evident in zoning that requires certain amounts of open space within the various land use categories. Indeed, this zoning blends very well with the city's efforts to reduce the sinkhole problem. Within several subdivisions, for example, sinkhole areas are used as a common space for recreation or simple enjoyment of their aesthetic qualities.

Solution processes and the resulting karst landscapes of the Bluegrass provide a valuable field laboratory for both students and instructors of geography. Few places have such a variety of active cave systems, sinkholes, and drainage features in such close proximity to a large urban area, and there is no question that Lexington represents an excellent case study of the interaction between humans and their physical environment. Caving is a popular past-time for a growing number of central Kentucky residents, and a surprising number of natives have grown up in and around caves and have relied almost solely on springs or wells for their water. Despite the benefits, either for recreation or as a source of water, the Bluegrass karst landscape will continue to cause problems that can be solved only through responsible action at both the individual and community level.

2

CREATING PLACES AND REGIONS

The Countryside

Karl B. Raitz

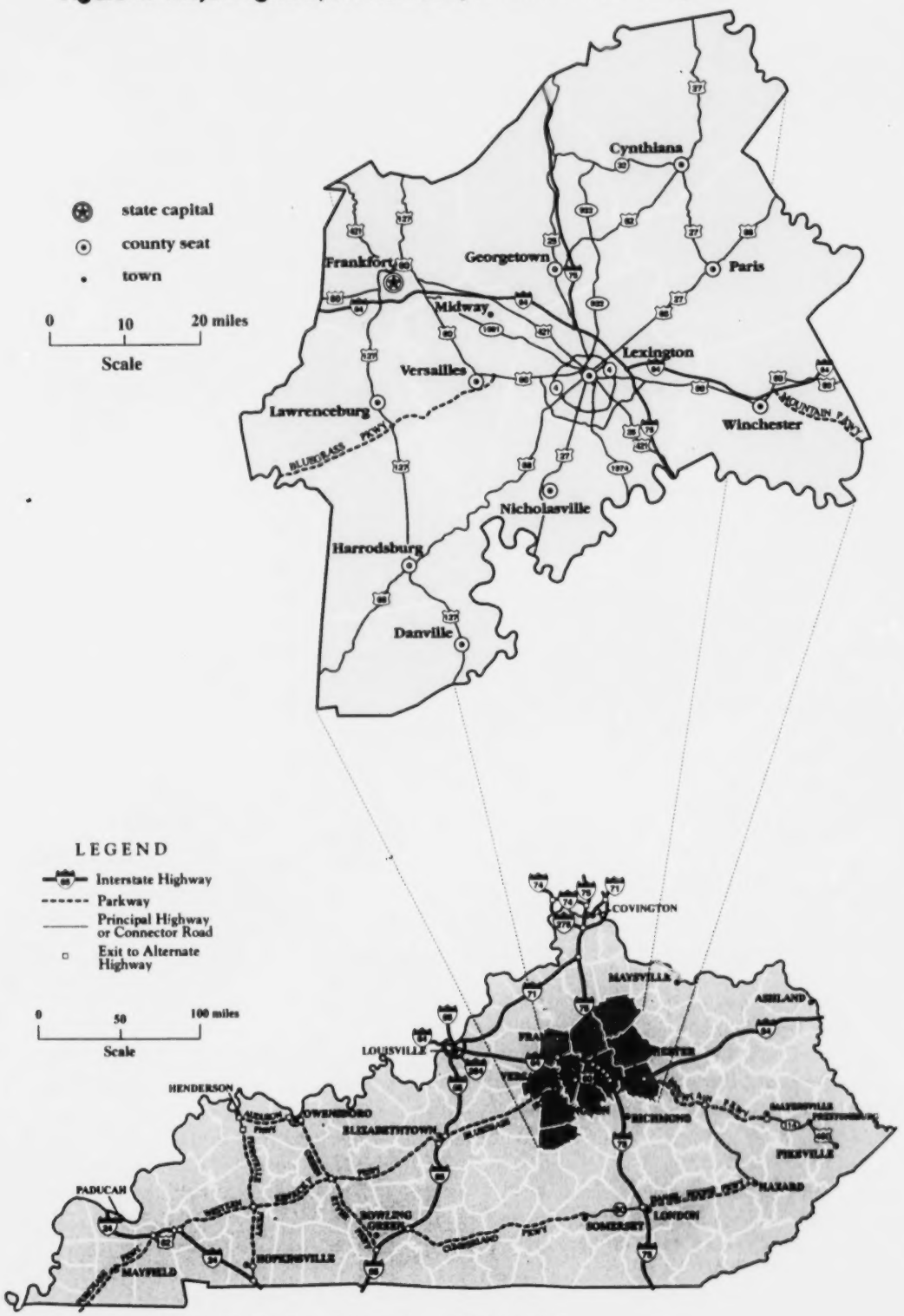
Spend an afternoon driving Inner Bluegrass country roads and you will invariably come to several conclusions about how the rural landscape is organized. Since the only towns of any size are county seats, the roads that connect one town with another are the radial roads that link county seats, roads named for their destinations—Versailles Road, Winchester Road, Paris Pike (Fig. 4). Smaller roads criss-cross the countryside in a loose web linking hamlets, old mill sites, and fords and ferries, and are likewise named for their destinations—Lemons Mill Pike, Huffman Mill Pike, McCouns Ferry Road, Delaney's Ferry Road, Mondays Landing Road, Oregon Pike, Athens-Boonesboro Road. Central Kentucky counties are small—Fayette County is 285 square miles (738 sq km), Bourbon County 292 (756 sq km)—so the county seat towns stand only fifteen to twenty miles (24 to 32 kilometers) apart. With some notable exceptions, smaller settlements are often crossroads collections of a grocery store and a few houses. The exceptions include about twenty African-American hamlets, each with a dozen or more houses, a church, and perhaps a grocery store. Before the Civil War, rural African-American slaves lived in quarters, or small houses, on their owner's farms. After the War, many freedmen moved to the larger towns, but for those who remained in the countryside, finding a place to live and a job was a major concern. Many farms continued to produce hemp, a labor-intensive fiber crop, grains, and livestock, and needed farm laborers. To house the freedmen so they would be close enough to walk to work at nearby farms, developers and farmers sold or donated land on which they built clusters of small houses that they sold or gave to former slaves. Many of these hamlets still survive, often in out-of-the-way places at the backside of a farm or tucked into the curve of a creek bank. Some are named for the person who developed the land, other names had religious connotations—Jones Town, Jim Town, Maddox Town, Zion Hill, New Zion.

Because railroads arrived well after the Inner Bluegrass was settled, railroad companies merely ran their track from one established town to another and were not concerned, as they would be farther west, with building railroad towns as places for people to settle. The single exception to this is the village of Midway, northwest of Lexington. In 1835, the Lexington and Ohio Railroad platted streets and lots for this village that lay midway between Lexington and Frankfort. The depot sat at one end of main street, or Railroad Street, and the track bisected the town's center.

Country Roads and County Seats

Country roads rarely run in straight lines, but rather conform either to the topography or irregular property boundaries. Because eighteenth-century Kentucky was part of western Virginia, settlement followed Virginia traditions, including the practice of surveying

Figure 4: Major Highways in Kentucky and the Inner Bluegrass



SOURCE: *Existing and Future Land Use Map,* Bluegrass Area Development District, June 1993

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land according to *metes and bounds* rather than a systematic rectangular survey like those used in Georgia or east Texas, or the federal *Township and Range* survey used across the Middle West and West. Without a basic grid to follow, surveyors enclosed land into oddly shaped and sized properties by boundary lines that connected corner markers. Boundaries might follow roads or streams. Corners might be marked by prominent trees, rock outcrops, piles of rock, or iron pins. The result was a crazy quilt of fields, rarely square or rectangular, today demarcated by rock or plank fences and country roads. Rock fences built by Irish immigrants—the most active rock fence building period was the 1830s through the 1850s—replaced the split rail fences erected by the first generation of settlers.

If county seats are the focus of country roads, these towns are also the focus of rural business. In each one—Cynthiana, Danville, Georgetown, Harrodsburg, Lawrenceburg, Lexington, Nicholasville, Paris, Versailles, Winchester, and Frankfort (also the state capital)—the courthouse stands on a central square surrounded by business buildings. In the nineteenth century, circuit judges came to town at designated times and town merchants counted on such court days and regular shopping trips for necessities to provide their business. But in most towns, these old commercial buildings today are either empty or occupied by non-traditional businesses, much like a hermit crab will inhabit a cast-off shell; as when a karate school offers martial training in a former women's clothing store, or a restaurant serves pasta salad in the town's old bank building. Until the mid-1960s, most county seat business districts were still vital, still host to a full complement of traditional businesses. Modern Main Street is no longer stable but, as elsewhere across the nation, is threatened by automobile-oriented strips that align the main highways at the edge of town. Here Wal-Mart stores and other discount shopping centers stand amidst acres of parking lots, fast food restaurants, gas stations, and small plazas where several businesses share a common building. Mayors and city councils fret about the status of their business districts and engage experts to devise solutions. Harrodsburg and Winchester have employed federally funded main street programs to refurbish their downtown buildings in an attempt to recapture business and intrigue tourists with a historic downtown. Midway's main street (called Railroad Street) is lined with antique shops, and Georgetown has an antique mall. Despite such efforts, the corner drug stores and hardware stores are, for the most part, gone, leaving the courthouse attended by the sheriff's office and a few lawyers' offices, implying that the only people who make the trip into town either are local people with legal business or tourists gaping at collectibles.

Inner Bluegrass Farms

Inner Bluegrass farms are of two types: general farms that produce burley tobacco, feeder cattle, corn, pasture grasses, and assorted other products, and specialized farms. The specialty farms concentrate on one or two products, especially dairy and horses. Burley tobacco is the state's leading cash crop, and the Inner Bluegrass is a leading tobacco producing area although the crop is raised in almost every county in the state. Nineteenth-century settlers brought dark, heavy varieties of tobacco into Kentucky from Virginia, genetically related to tobaccos grown in the Caribbean. These tobaccos were manufactured into chewing plugs and cigars. In the 1860s, a southern Ohio farmer discovered in his seed bed a mutated, lighter colored tobacco, and from those plants came the modern burley tobaccos that are milder and a major constituent of cigarettes. Tobacco production has been controlled and supported by federal allotment programs since the 1930s. Most allotments were small, an acre or less, and were intended to stabilize prices; but production controls also had the effect of tying tobacco to specific farms or individuals, in effect freezing the geography of production by prohibiting expansion into unplanted areas.

In the spring, farmers plant burley in sterilized seed beds. The beds are covered with a thin white muslin cloth to keep out pests and weed seeds, and screen out harsh sunlight. In May or June, a work crew will transplant the seedlings into carefully prepared fields. During the summer the crop requires weeding and spraying for pests and diseases. Seed heads must be broken off as they form. The well-tended crop matures by mid-August or September. Burley is harvested, increasingly by migrant labor, by chopping off the entire stalk near the ground. The stalk is impaled on a four-foot stick with four or five other plants, and hauled to a large barn. Each tobacco stick is hung inside the barn on an internal frame, and the sticks near the roof may be thirty feet or more above the floor. The crop is then air cured; that is the farmer will open tall, narrow doors along each side in dry weather to allow air to circulate and gradually reduce the leaves' moisture content. In November, the crop is usually ready for market. Farmers retrieve the sticks from the barn, repair to a small attached shed to strip the leaves from the stalks—placing each leaf in an appropriate grade pile—and then bale the graded tobacco leaves together. After Thanksgiving, the tobacco auction markets in Lexington and the county seat towns open and the roads are crowded with tobacco-laden trucks and trailers hauling the crop to the warehouses. Tobacco leaves litter the roadsides and streets near the warehouses. After the tobacco is auctioned, it requires further drying. This may take place in the winter and early spring months and fills the air with the smell of cured tobacco. Tobacco auction warehouses are large, often with an acre (43,560 sq. ft.) or more of floor space. Those in Lexington cluster along the main railroad arterials, South Broadway, Leestown Road, and Old Frankfort Pike. The Penn Brothers Warehouse was reputed to be the world's largest until it was torn down a few years ago. Now a large food store, a fast food restaurant, and parking lot occupy the site.

Corn has traditionally been fed to livestock and provided the raw material for a whiskey industry. The mash that bourbon is made from must, by federal law, be at least 51 percent corn. A century ago, most central Kentucky counties had distilleries. These have gradually consolidated and are now production centers in Louisville and Nelson County in the Outer Bluegrass. Large distilleries remain in the Inner Bluegrass near Lawrenceburg.

Specialized horse farms concentrate in an arc around Lexington, and spill into adjoining counties. Some farms are owned by wealthy individuals from out of state who maintain breeding and racing operations. Local people own other farms and they represent the third or fourth generations in the same business. They may concentrate on either breeding for sale, training, or racing. The horse farm landscape has evolved into a highly refined milieu of parkland pastures, white or black plank fences, large, colorful barns, and great stylish houses. Although the farms occupy a small portion of the Inner Bluegrass, a region that itself comprises only about 11 percent of the state's territory, the horse farms are powerful tourist attractions and offer symbols that local communities and the state have employed to represent the state to the world.

At the edge of the Inner Bluegrass region, the countryside changes abruptly. The shale and limestone Kope geologic formation surrounds the Inner Bluegrass limestones in a rough ring commonly called the Eden Shale Hills (see Fig. 2). The shales break down quickly into yellow clays producing poor soils and steep slopes. The Eden Shale was not coveted by early Bluegrass settlers and when farmed in the nineteenth century proved a harsh place to make a living compared to the lush lands in the Inner Bluegrass. Today, second growth cedars and hardwoods cover the shale hill slopes and modest farms string out along the valley bottoms. These farmers may commute to nearby towns for jobs that supplement farm income.

The Region's Towns and Cities

Richard Ulack

At the center of an important crossroads location, Lexington was in its heyday the central city for the entire Bluegrass region. As early as 1800 it was considered by many to be a most important place with its many fine homes, estates, taverns and inns, and diverse businesses and manufacturing activities. By the early 1800s, the Wilderness Road from the Cumberland Gap, the Limestone Road from Maysville (formerly Limestone), Kentucky on the Ohio River, and the Midland Trail that linked Ashland and Louisville, all passed through or terminated in Lexington. With Transylvania College and other cultural and educational influences, Lexington by 1820 could accurately lay claim to being the "Athens of the West." There were other indicators of Lexington's early significance. Wealthy estate owners brought and raised high quality livestock, including thoroughbred horses, and by 1828 the first horse-racing track was built in Lexington. The nation's second mental hospital, the Eastern Lunatic Asylum, was opened in the city in 1824. By 1820, the city could still lay claim to being the largest place in Kentucky, twice as large as upstart Louisville. By the end of the decade, however, Lexington had lost its primacy.

Early City Growth

Even Frankfort was larger than Louisville in these early years. Because it outbid Lexington (it offered more land, material, and money for construction of the state house), the legislature approved Frankfort as the state capital in 1792. (The debate over whether the state capital should be located in Frankfort, Lexington, or Louisville lasted until 1904, when the state legislature voted to allocate the revenue—one million dollars—to construct a new capitol building in Frankfort). The 1800 census-takers counted 628 persons in Frankfort, thus making it the state's second largest town after Lexington. Frankfort also became an important transportation hub as steamboats traveled between Louisville and Frankfort, which stands beside the Kentucky River, and a turnpike connected the capital with Louisville and Lexington, as well as with other, smaller towns of the area.

The importance of Lexington and Frankfort would soon diminish with the rapid growth of Louisville. The site at the Falls of the Ohio and the break in navigation that this physical feature caused, together with the invention of the steamboat, shifted the focus of urban life in Kentucky seventy-five miles (121 kilometers) to the west to Louisville. It took human-powered keelboats and their cargo three or more months to make the trip upstream from New Orleans to Louisville; the steamboat made the same trip in only one week. The first steamboat arrived at Louisville in 1811 and by 1830 the city's population numbered over 10,000 citizens, which made it the state's largest urban place. By 1830 Lexington's population was just over 6,000, and Frankfort's was a mere 1,682.

Lexington's Development

In recent years, especially since the 1950s, Lexington's growth, in terms of population, industry, and service activities, has been very rapid; by 1970 the city was the fifteenth fastest-growing in the nation with a population of 108,000, or 72 percent more people than it had in 1960. In 1990, the city's population was 207,000 (see Table 1). One reason for such rapid population growth is the new industries and service activities that have created employment. These activities have located in Lexington in part because of the city's central location and the excellent Interstate highway and road network that serves the area; Interstates 75 and 64 and the Bluegrass Parkway all intersect near Lexington (see Fig. 4). Lexington, since it is not located on a river, never had access to water transportation as did Louisville or Frankfort. Furthermore,

while railroads connected Lexington to Frankfort, Louisville, Ohio, and other places beginning in the mid-nineteenth century, they never spurred the city's growth as was the case in other cities. Thus it is the more recent highway network that has made Lexington a more central place.

The 1950s witnessed the industrial growth of the city; in 1956 International Business Machines (IBM) opened an electric typewriter plant on the north side and soon a number of other industries followed. IBM sold its operation to IBM-affiliate Lexmark in 1991, which manufactures printers and laptop computers, but the region's industrial activities continue to grow. Most recently, the huge Toyota Motor Manufacturing (TMM) plant was opened near Georgetown in Scott County where it builds its Camry automobiles; today over 5,000 workers are employed at the plant. Service activities, however, remain Lexington's most significant employment sector with over three-quarters of the city's workers so employed. The city serves as the medical, legal, financial, cultural, and educational center for the Inner Bluegrass, as well as for eastern Kentucky and other parts of the state. The city's largest employer, the University of Kentucky with some 10,000 faculty and staff, is the major university for the entire state. Lexington, even though its industrial work force has increased in size and share since the 1950s, can be characterized as a white-collar city.

Surrounding Lexington in a hexagonal pattern are the other county seat towns of the Inner Bluegrass: Georgetown, Paris, Winchester, Nicholasville, Versailles, and Richmond (Fig. 4). Only the latter, in Madison County, is not technically part of the Inner Bluegrass. These county seats are connected to Lexington by roads that all merge into Lexington's Central Business District (CBD). Lexington's present-day street system can be likened to spokes on a wheel; each spoke is a road that connects the county seat with downtown Lexington and each is named after the town where it originates. In addition to the six places named above, Old Frankfort Pike (and the newer Leestown Road) from Frankfort and Harrodsburg Road also wind their way to Lexington. In more recent years, an outer wheel was added to Lexington's street pattern with the construction of four-lane New Circle Road (State Route 4) around the city, with the downtown hub at the center. More recently, a new semicircle has been added further out (to the south) called Man O'War Boulevard, also four-lane and built to alleviate the heavy traf-

Table 1: The Inner Bluegrass: Populations of Cities and Towns

	1870	1910	1950	1990
Cynthiana	1,771	3,603	4,847	6,497
Danville	2,542	5,420	8,686	12,420
Frankfort	5,396	10,465	11,916	25,968
Georgetown	1,570	4,533	5,516	11,414
Harrodsburg	2,205	3,147	5,262	7,335
Lawrenceburg	393	1,723	2,369	5,911
Lexington	14,801	35,099	55,534	207,075
Nicholasville	1,089	2,935	3,406	13,603
Paris	2,655	5,859	6,912	8,730
Versailles	3,268	2,268	2,760	7,269
Winchester	1,616	7,156	9,226	15,799
Total	37,306	82,208	116,434	322,021

fic flow on New Circle Road and the expanding suburbs. It has been in the south, especially the wedge from Richmond Road to Harrodsburg Road, that suburban development has been most rapid since the 1960s.

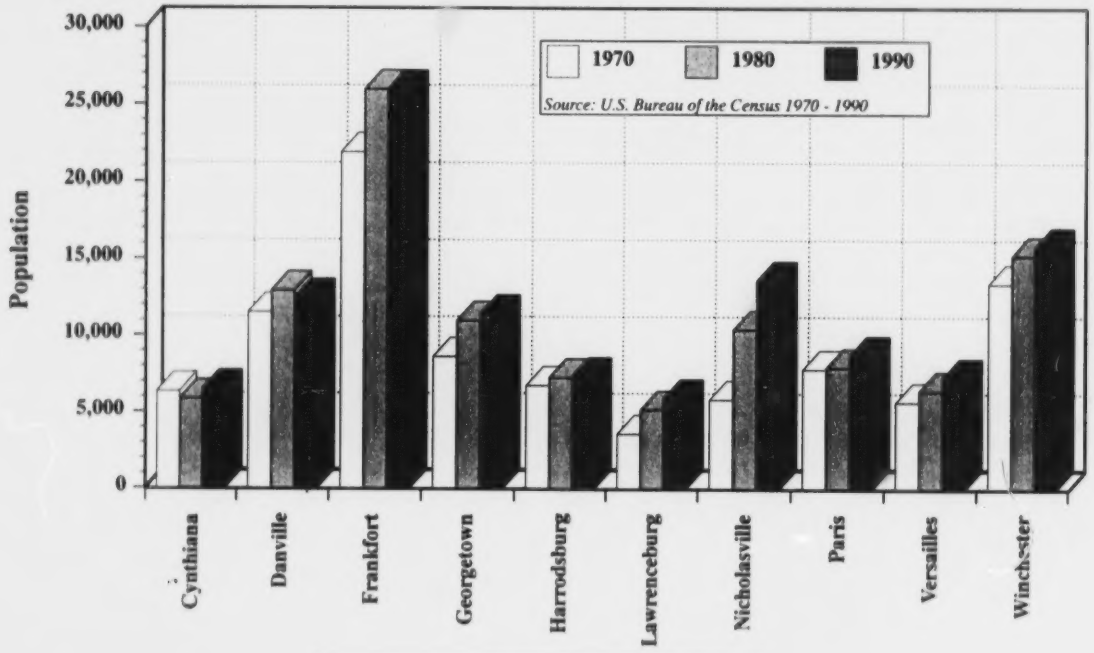
Emergence of Other Towns and Cities

The next largest towns to emerge were settled about the same time. All became county seats as their respective counties were formed (the last of the eleven Inner Bluegrass counties to be formed was Boyle in 1842). Older than Lexington is Harrodsburg, the first permanent pioneer settlement in Kentucky, founded in 1774. Harrodsburg was officially established and designated a county seat by the Virginia legislature in 1785, when Mercer County was formed; the town of Harrodsburg was not incorporated until 1836. Three places founded in the 1780s were Danville (1783; incorporated in 1836), Lebanon (incorporated in 1784 by the Virginia legislature), and Hopewell (1789). Lebanon was renamed George Town in 1790 and Hopewell was renamed Paris, also in 1790, to correspond with the naming of Bourbon County after the French royal house. Danville was the first site of Transylvania University in 1783 before it was relocated to Lexington in 1789. Danville boasts Centre College, established in 1819, which has gained a reputation as one of the region's best small liberal arts colleges. Also in Danville, the Kentucky School for the Deaf was established in 1823 and was the first public institution of its kind in the nation. Georgetown is sited at an important spring and is noted for its excellent water supply. Danville, Paris, and Georgetown became the county seats of their respective counties after they were formed, that is, Boyle (formed in 1842), Bourbon (1785), and Scott (1792), respectively. In 1792 Winchester was established and it became the county seat of Clark County in the same year when the county was formed. Versailles (pronounced Ver-sales in Kentucky), named in honor of General Lafayette's birthplace in France, the county seat of Woodford County, was established in 1792 and incorporated in 1837.

Woodford County contains some of the world's most famous thoroughbred horse farms including Airdrie Stud, Pin Oak, Three Chimneys, and Lane's End, the latter of which is a regular stopover for Queen Elizabeth II during her visits to the Bluegrass. Midway (1990 population of 1,300) is also an incorporated town in Woodford County and it has the state's only women's college, Midway College. Cynthiana, named for the daughters (Cynthia and Anna) of founder Robert Harrison, was established as the Harrison county seat in 1793 and was incorporated in 1860. Jessamine County was formed in 1798 and its county seat, Nicholasville, received its charter in 1812 and was incorporated in 1837. Nicholasville, located on a major nineteenth century north-south route to Lexington, is today the residence of many who work and commute to Lexington. The newest place among Inner Bluegrass towns is Lawrenceburg, which was incorporated in 1820 and became the county seat of Anderson County upon its formation in 1827. Lawrenceburg was an important stop on the Frankfort to Harrodsburg Road and is today known for the bourbon distilling industry in surrounding Anderson County.

None of these places has attained the size or significance of either Lexington or Frankfort (Fig. 5). Lexington, at the heart of the Inner Bluegrass region, grew to become the focal point for the region and today is the destination for many in the region who are seeking higher-order medical treatment, cultural opportunities, or shopping malls, to name but a few of the reasons for traveling to the big city. Indeed, the region and its urban hierarchical system is a good real-world example of Walter Christaller's Central Place ideas. Frankfort probably should not have emerged to be the place that it is today but given its very early selection as state capital, its site on the Kentucky River, and its situation between Louisville and Lexington, it has attained a size and importance that belies what its site and situation warrants.

Figure 5: Cities and Towns of the Inner Bluegrass: Population Growth, 1970-1990



The smaller places of the Inner Bluegrass and their own hinterlands have several common features. They are all centers for marketing the agricultural commodities produced in the rich soils of the area's farms. Most important among the commodities are burley tobacco and livestock, especially beef cattle and thoroughbred horses. Historically, most Inner Bluegrass counties produced whiskey but today only two counties, Franklin and Anderson, still have distilling industries. All Inner Bluegrass cities and county seats have been successful in attracting industry. The most notable is the huge Toyota plant that opened in Georgetown in 1987; since then the plant and production of the Camry automobile have expanded, as has employment. Tax incentives notwithstanding, the excellent situation of the Inner Bluegrass in the eastern United States, together with the accessibility afforded by the Interstate highway system, were among the major reasons for Toyota to select this location.

Lexington itself is the world's largest burley tobacco marketing town and most of the tobacco produced in nearby counties is transported to Lexington for sale at auctions. Lexington has also become the center for thoroughbred and standard bred horse sales and today buyers from around the world come to Lexington to bid on the horses. The sales each year realize millions of dollars. The region's history and beauty have also brought another bonanza to the region: tourists. Today, the eleven-county Inner Bluegrass region accounts for more than 20 percent of the state's tourist employment and more than 20 percent of its tourist travel expenditures.

The Population of the Inner Bluegrass

Richard Ulack

In 1810, the Inner Bluegrass region was the population center of the state and contained more than one-half of the entire state's population, but by 1900, the eleven Inner Bluegrass counties accounted for only 9.2 percent of the state total. During most of the twentieth century, and especially during the last several decades, the region's population has been growing more rapidly than that of the state so that by 1990, nearly 13 percent of the state's population resided in the Inner Bluegrass. In 1990, 467,785 persons were living in the eleven-county region, or an increase of nearly 30 percent over the number in 1970. For comparative purposes, the Inner Bluegrass grew considerably faster than both Jefferson County, which lost population (-4.3 percent), and the state as a whole, where the population increased from 3.2 million to nearly 3.7 million (or by 14.5 percent) (Table 2). During the 1950s and 1960s, the Inner Bluegrass population also grew at a rate more rapid than that of the state (39.2 percent vs. 9.3 percent), but the population of Jefferson County increased more than 43 percent.

Suburbanization Led the Changes

One explanation for the changes in population growth trends for the periods 1950-1970 and 1970-1990 is that the suburbanization (and, to a lesser extent, "exurbanization") was taking place and new (and old) residents were moving to the "bedroom" communities and counties surrounding the cities of Louisville and Lexington and, indeed, most of the other larger places across the nation. The accompanying choropleth map of the state clearly shows that a number of the counties contiguous to Jefferson and Fayette Counties and in the Cincinnati area grew rapidly during the

Table 2: Population, 1990 and Population Growth, 1950-1970 and 1970-1990 Inner Bluegrass, Jefferson County, and Kentucky

	Population (#)	Population Growth	
County/Region	1990	1950-1970	1970-1990
Anderson	14,571	4.16%	55.71%
Bourbon	19,236	4.08%	4.11%
Boyle	25,641	2.72%	21.58%
Clark	29,496	27.47%	22.44%
Fayette	225,336	73.03%	29.26%
Franklin	43,781	32.96%	26.97%
Harrison	16,248	3.07%	14.76%
Jessamine	30,508	40.79%	73.94%
Mercer	19,146	8.99%	19.96%
Scott	23,867	18.54%	32.98%
Woodford	19,955	28.74%	38.25%
Inner Bluegrass	467,785	39.16%	29.27%
Jefferson	664,937	43.42%	-4.33%
Kentucky	3,685,296	9.30%	14.50%

Source: *1993 Kentucky Deskbook of Economic Statistics*

Figure 6: Kentucky Population Growth (%), 1970-1990

SOURCE: U.S. Dept. of Commerce, Bureau of the Census

most recent twenty-year period (Fig. 6). Jessamine County, immediately south of Fayette County, grew by nearly 75 percent and Oldham County near Louisville, increased from 14,687 in 1970 to 33,263 in 1990, or more than 125 percent! Exurbs, or bedroom communities not contiguous to the central cities, also expanded during the recent period. One example of this is the development of new homes in places like historic Midway in Woodford County, a county in which the population increased by nearly 40 percent between 1970 and 1990.

Not all of the Inner Bluegrass is comprised of people who live in cities and towns, suburbs, and exurbs. According to the U.S. Bureau of the Census, slightly over one-quarter (27.4 percent) of those living in the eleven-county region reside in what is defined as "rural" areas. If we exclude the population of Fayette County, then over one-half (50.1 percent) of the population live in rural areas. Clearly, only a very small portion of this population is actively engaged in agricultural pursuits (4 percent of those employed; see below), but these figures demonstrate that the people of the Inner Bluegrass region remain firmly tied to the rural landscape. The vast majority of those employed commute to jobs in the nearby county seats, in Lexington, or in other cities and towns in the area.

Jobs, Education, and Growth

A reason for the overall rapid population increase in most of the Inner Bluegrass counties is the employment opportunities available in Lexington, Georgetown (Toyota), and the other county seats and towns where employment in industries and service activities is available. In 1991, the region's rate of unemployment was only 4.7 percent, compared to 7.4 percent for the state. Fayette County's rate of unemployment was 3.8 percent and only one county, Clark, had a rate (7.5 percent) above the state average. Of those employed in the eleven-county region, only 4 percent were employed in agriculture, the same as the rate for the state as a whole. Not surprisingly, there is a high percentage employed in government jobs in Franklin County where the state capital, Frankfort, is located and a high percentage working in manufacturing in Scott County, where the Toyota plant is located (Table 3). With the exception of Fayette, Franklin, and Jessamine

Table 3: Non-Agricultural Employment by Type of Industry, 1991

County/Region	Employment in all Industries	Type of Industry (%) Mfg.	W & R Trade*	Services	Govt.*
Anderson	2,940	31.67%	28.03%	10.78%	18.84%
Bourbon	5,481	21.20%	24.48%	12.42%	15.53%
Boyle	11,937	25.84%	29.43%	22.42%	12.97%
Clark	9,947	29.93%	24.65%	14.13%	11.70%
Fayette	135,015	12.69%	25.76%	27.00%	16.51%
Franklin	28,106	12.82%	14.21%	11.75%	53.01%
Harrison	4,900	39.80%	23.29%	15.35%	12.33%
Jessamine	7,607	19.85%	29.71%	14.82%	16.08%
Mercer	5,735	38.20%	21.64%	14.89%	11.46%
Scott	11,819	47.28%	17.24%	14.62%	9.62%
Woodford	8,688	44.06%	14.76%	13.77%	8.30%
Inner Bluegrass	232,175	18.94%	23.63%	21.75%	19.66%
Jefferson	358,420	18.65%	25.90%	27.83%	9.10%
Kentucky	1,369,320	20.49%	25.42%	21.52%	14.75%

*Wholesale & Retail Trade; State & Local Government
Source: *1993 Kentucky Deskbook of Economic Statistics*

counties, all the region's counties have a greater share employed in manufacturing than is the case for the state as a whole. Apparently, local officials have been successful in attracting industry to their areas, a goal of nearly all chambers of commerce and city officials. Lexington, as noted in a previous chapter, is a white-collar city, which the percentage employed in services clearly indicates. By comparison Jefferson County, where Louisville's central city is located, in 1991 had a higher percentage working in the manufacturing sector (18.65 percent) and a smaller proportion working in government jobs (9.1 percent) than did Fayette County.

As befits an urban region like the Inner Bluegrass that can be characterized as having a disproportionate share of professionals, white-collar workers, and skilled factory-workers, numerous health facilities, and six institutions of higher learning (the University of Kentucky and Transylvania University in Lexington.

Kentucky State University in Frankfort, Georgetown College in Midway, Centre College in Danville, and Midway College in Midway), the population gets high scores on socio-economic indices. For example, personal per capita income in 1990 ranged from a low of $14,500 in Anderson County to a high of $23,493 in Woodford County; that of Fayette County was $19,320. These figures compare with the state average of $14,965 (1992 data); the range for all Kentucky counties was from that of Woodford County, the highest in the state, to a low of $7,663 in McCreary County in the state's eastern mountains.

The educational level of the region's population is considerably higher than the average for the state. In 1990, nearly two-thirds (64.6 percent) of the state's adult population (those 25 years and older) graduated from high school and 13.6 percent had Bachelor's degrees. Comparable figures for Fayette County, which ranked first among

all of the state's counties in education, were 80.2 percent and 30.6 percent, respectively. Among the other ten counties in the Inner Bluegrass the lowest levels were in Harrison County (62.4 and 8.6 percent) and the highest were in Franklin County (76.0 and 21.3).

The racial and ethnic diversity of the region's population remains homogeneous relative to that typical of much larger urban regions. The Black population of the eleven counties accounts for 9.6 percent of the regional total; Fayette County is 13.4 percent Black; and that of the other ten, more rural counties amounts to only 6.0 percent of the total population. Comparable percentages for the nation, state, and Jefferson County in 1990 were 12.3, 7.1, and 17.1, respectively. The Asian population was of course quite small and the 3,713 Asians counted in Fayette County comprised only 1.6 percent of the county total but was relatively greater than that of the state (0.5 percent) or Jefferson County (0.7 percent). A large research university, Toyota and other Japanese industries, and a growing Asian retail community have meant an absolute and relative increase in the number and percentage of Asians in the county. That the number and influence of Asians and their culture has grown in the community is indicated by the fact that in 1974 (when the author moved to Lexington) there was but *one* Asian restaurant in Lexington—Wing's Teahouse—and that served Chinese, American, *and* Italian cuisine. The Teahouse has long since closed but today, according to the most recent telephone directory, there are *twenty-eight* Chinese restaurants (about six of which are carry-out), four Thai, three Japanese, one Indian, and one Vietnamese restaurant in Lexington. The city has truly become a cosmopolitan place.

Bluegrass Culture

Karl B. Raitz

Consider the following juxtapositions found in or adjacent to central Kentucky's Inner Bluegrass Region: burley tobacco production and policies that restrict smoking in public buildings; bourbon whiskey distilling and dry counties; horse race tracks with their on and off-track wagering and conservative fundamentalist churches; legal game cock fighting and the ASPCA.

The diverse, even oxymoronic character of the attitudes and habits reflected by these commonplace institutions has a heritage that extends back to the region's early Anglo immigrants. Surveyors and early explorers thought this area an Eden. They conveyed news about the region's rich limestone lands back to the Virginia settlements east of the Appalachians, prompting migration of some of that area's wealthiest plantation owners west to Kentucky by the 1780s. Many of these individuals represented Virginia's landed gentry. They were often Anglophiles, admirers of things English, including the politically-powerful rural English squirearchy. These Virginians were often well-educated in English or American colleges and they strongly influenced the emerging central Kentucky economy and political structure. Some of these settlers established plantations that produced cattle, horses, hemp, or tobacco. Others provided legal and financial services. Derived, in part, from England's Cavalier society, Virginian cultural traditions included an aristocratic bent that underwrote slave-holding as a labor force, service in government as a link to prestige and power, large land holdings as a measure of status, and relished gambling, be it on horse races or fighting cocks, as an accepted mode of entertainment. They transplanted riding-to-hounds English-style fox hunting from Virginia to constitute a form of recreation that could be imitated only at considerable expense, and thus would guarantee exclusivity.

The Common People Arrive

A second group of migrants were common people of English, Scottish, Irish, or Scots-Irish heritage, many coming from Maryland, New Jersey, and Pennsylvania by way of the Ohio River. They became laborers, tenants, or farmers; some started businesses or became merchants. These folk comprised an early underclass that had to scrape to obtain and hold land that, in the eighteenth and nineteenth centuries, was the key to political power. If the Virginia aristocrats and their Kentucky descendants tended toward the Episcopal and Presbyterian faiths, the common people seemed to prefer the Baptist teachings that a small group of preachers brought to the Inner Bluegrass in the early 1780s.

For the next eighty years the Bluegrass Region's population would gradually increase, the common folk and the African-American slave groups together outnumbering the politically and economically powerful planters and professionals. The Irish potato famine in the 1840s would push thousands from that small island onto ships that brought them to America. Many made their way to central Kentucky where they found employment as farm laborers or as masons who built the rock fences that edged farm fields and aligned roadways. The region's perspective continued to be agrarian, and even county seat businesses were dependent upon the productivity of surrounding farms. Crossroads Lexington emerged as the most rapidly growing town but its largest industries focused on hemp processing, rope walks, tobacco warehousing, and distilling; activities all closely tied to rural fecundity. The countryside around Lexington evolved into the nation's premier pastoral nursery for blooded cattle and race horses, an industry founded upon stock imported from England, Ireland, and other European sources.

Links to the Outside

After the Civil War, outsiders began to infiltrate the Bluegrass economy and society. The Southern Railroad and the Louisville and Nashville Railroad laid tracks that linked the land-locked region to the industrial North. The most influential new immigrants were wealthy business types who bought or built Kentucky horse farms. Most pre-Civil War stock farms had been functional, although several had features that imitated the English squires' country estates: formal English gardens, deer parks, and great brick or stone houses. In a display of conspicuous consumption unmatched elsewhere in rural America, the new immigrants augmented their Bluegrass farms with great architect-designed barns and outbuildings, white-washed or black asphalt-painted fences, and hard-surfaced lanes. One horseman's farm on Paris Pike included stone barns, a large dairy, and employed a thousand people, many of whom lived in Lexington and rode the interurban rail line out to the farm each morning. If the era of outside investment in Bluegrass horse farms had a golden age it was the period from about 1910 to 1930, but although fewer outsiders built avocational farms during the Depression and World War II, activity resumed in the 1960s and 1970s.

In 1956, the International Business Machines corporation built an electric typewriter plant in north Lexington. A new generation of educated and technically-oriented immigrants began to arrive in the city. Their presence attracted others. The University of Kentucky began to expand its programs and faculty. Eastern Kentucky's cyclical boom-depression economy pushed many people out of that region's mining towns and into central Kentucky. These additional layers of human and cultural diversity focused on Lexington and the county seat towns, and the Inner Bluegrass region began to change its complexion yet again.

Two Centuries of Juxtapositions

Two centuries have passed, but the traditions and values of the old Virginia aristocracy and the common folk are still juxtaposed. Sometimes these cultural traditions are manifest on the land; as often they are disguised by con-

temporary habitude, yet lurk just below the facade of modernity. Dietary preferences still lean toward country ham, bean soup, corn bread, and fried fish and chicken. Bourbon remains a preferred spirit for many. Tobacco farmers, until the most recent spate of laws restricting smoking in public buildings, enjoyed the support of state politicians and federal agricultural price support programs. Horse farms, racing, and hunting all furnish icons—be they art prints of race horses or fox hunts, photographs of palatial homes, the racing silks of Kentucky Derby winners and silver mint julep cups, or images of cupolaed and fan-windowed horse barns—that people display to signify their acceptance of this distinctive amalgam of regional traits. State agencies employ them to design brochures that will attract tourists, shopping center and business building architects incorporate them into their structures, and city boosters re-create them in expensive bronze at a Lexington gateway. Even the common people tend to venerate the contemporary squirearchy, often referring to a notable horse or farm as though it was public property.

Of course one could add to this list of cultural traits and attributes a masculine devotion to hunting and fishing, especially if high-powered boats or four-wheel drive pickups are involved, a love of and identification with university basketball teams, be they at the University of Kentucky or the University of Louisville, or the preference for doing business with a handshake instead of a contract. Yet these are characteristics that might be found elsewhere too, especially in the South. To find the region's core cultural attributes, one need only look back over the last two centuries and trace the threads of aristocracy and common folk down to the present.

Lexington

Richard Schein

Lexington became a town in the last two decades of the eighteenth century. The original town plat, submitted to the Virginia legislature, was oriented to the Town Branch of Elkhorn Creek, which now runs under Water and Vine Streets downtown (Fig. 7). The plan's focus was a town commons, a space now bisected by Broadway and partially occupied by Triangle Park and the Hyatt Hotel. Around the Commons was a series of one-half acre commercial *in-lots*, which, in turn, were flanked primarily on the east by approximately one hundred five-acre *out-lots*. This original plat forms the nucleus of the city to this day; a sense of the scale is gained by realizing that present-day Gratz Park occupies almost three out-lots in the original plat.

Showing Great Promise, Early

Lexington showed great promise at the turn of the nineteenth century and was perhaps second only to Lancaster, Pennsylvania as the major inland American urban place. It quickly emerged as the commercial center of not just the Bluegrass, but for much of the trans-Appalachian West. The town's population increased from 350 to more than 4,000 people between 1790 and 1810 and Lexington also began to exhibit the timely signs of quasi-industrial development. Lexington was soon eclipsed economically by Ohio River towns such as Louisville and Cincinnati, which benefited from upstream steamboat traffic by 1820. Industrially overshadowed, Lexingtonians instead established the town as the Athens of the West. Lexington was dominated by an urban elite who often drew battle lines along Presbyterian and Episcopalian distinctions, and focused their energies on establishing (and fighting over) Transylvania University and other institutional accouterments of the urbane middle landscape, including coffee houses, an Athenaeum, finishing

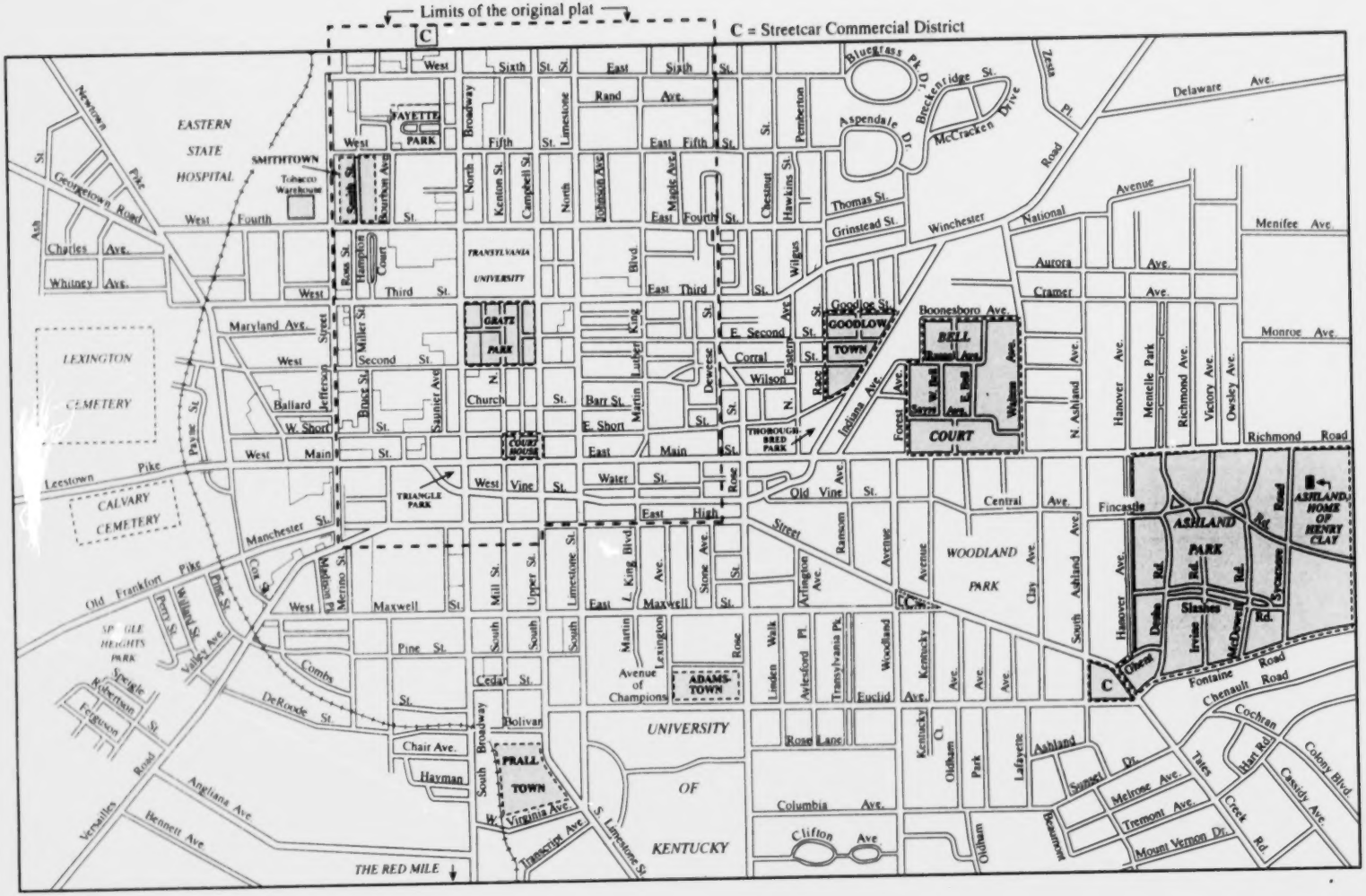


Figure 7: Downtown Lexington, Kentucky

SOURCE: University of Kentucky Cartography Lab, 1994.

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academies, ballrooms, and a hospital. Lexington became the county seat, and ultimately a wealthy country market town dominated by the collection, sales, and processing needs of hemp, cattle, and, by the end of the century, burley tobacco. The city is still the largest burley tobacco market in the world, and from November through late winter there is a steady stream of trucks bringing the dried, stripped, and bundled crop to markets such as the one on Fourth Street just west of Jefferson Street.

The physical town grew from the original plat. Broadway and Main streets formed the main urban axes, and Main Street became the city's primary retail, service, and government district. Roads leading to surrounding county seats left Lexington as radial axes, connecting the market town with its surrounding hinterland and forming the spokes of Lexington's present wheel-like urban morphology. These roads maintain their names—Richmond, Nicholasville, Winchester, Paris—as reminders of the Bluegrass urban hierarchy (Fig. 8). The railroad arrived before the Civil War, one branch skirting the town, the other traversing the routeway of present-day Water and Vine Streets. The former still exists, forming a light industrial and warehouse cordon just beyond the urban core as it existed mid-nineteenth century. The latter route, now defunct, served as a second industrial-warehouse corridor through the city's heart along the Old Frankfort Pike/Vine-Water Street/Winchester Road axis; a fact still evident by comparing the canyon-like feel of that axis with Main Street's retail, government, and financial character.

The end of the Civil War and manumission in Kentucky brought an exodus of African-Americans from the surrounding countryside to Lexington. African-Americans accounted for 80 percent of the urban population growth in the decade after 1860 so that by 1870 Blacks made up almost one half the Lexington population, up from a fairly steady rate of about 30 percent before the war (today the percentage is less than 13). Many entrepreneurial land developers subdivided properties around the city's then-periphery in order to accommodate the increased housing demand. The result was a series of black enclaves, creating a micro-geography of segregation scattered throughout the larger city. Examples include Prailtown, Smithtown, Goodlowtown, and Adamstown (now covered by Memorial Coliseum on the UK campus). The placement of these Black residential areas in part shaped the city's subsequent racial geography to the present day.

Into the Twentieth Century

Meanwhile, middle class, white Lexington continued to grow. Urban residential subdivisions expanded beyond the urban core, into a surrounding ring of exurban gentleman farms whose boundaries are the basis for contemporary sections or neighborhoods of the city.

Streetcar lines often provided residential access, such as the Main Street route that connected downtown with the 36-acre Bell Estate and the several hundred-acre Henry Clay estate, Ashland. Today, the Bell house stands as a community center in Bell Court and Ashland remains as a museum and centerpiece of the Olmsted Brothers-designed subdivision called Ashland Park. Low-order retail centers often emerged at streetcar turning points (still evident at the corners of High and Euclid, Woodland and High, Loudon and Broadway), and the lines often included terminal attractions such as the Fair Grounds (now the Red Mile track) or the "City of the Dead," the Lexington Cemetery.

Perhaps the most notable twentieth century urban change in Lexington is the city's massive suburbanization—especially south of the city—since World War Two (Fig. 8). The city's hottest political debate is over the expansion of the urban service area. Between 1950 and today the city and county governments merged (in 1973); the urban population has increased from around 50,000 to 225,000;

Figure 8: Lexington's Urban Growth, 1940-1990

SOURCE: University of Kentucky Cartography Lab

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two circle roads—Man O'War and New Circle (the inner circle route or Route 4)—circumnavigate the urban core; Interstates 64 and 70 arrived on the scene; malls, shopping centers, and the strip (most notably on the radial axes) have overtaken downtown retailers; the University of Kentucky has rapidly expanded; several industrial concerns have been lured to the city—most notably IBM (now Lexmark) in the 1950s; and the city has emerged as the service provider for an enlarged rural hinterland that extends on the east at least as far as the West Virginia border. Today only 12 percent of the Lexington workforce is employed in manufacturing (Lexmark leads with 4,000 employees) and the largest employer in the urban area is the University of Kentucky (10,000).

Lexington as Unique Yet Typical

Although certain aspects of Lexington's urban history and geography are unique, in many ways its social and spatial developments are similar to—if not exactly like—many middle sized cities across the country. A contemporary map can be drawn to divide the city along traditional socio-spatial lines of class, ethnicity, functional use (retail, wholesale, residential, etc.), transportation axes, and so on. Lexington generally appears as a late twentieth century galactic city whose urban core has been abandoned by all but financial and government workers, tourists and basketball fans (Rupp Arena seats 23,000), a few gentrifiers, and the urban underclass, in favor of the burgeoning suburbs by the affluent middle class. Such a map of the city is useful. It provides us with familiar signposts to the urban landscape; a guide we can read and from which we can (accurately) predict the location of the nearest McDonald's, the requisite urban festival market or Victorian Square, the upscale suburban shopping mall, and inner city, federally subsidized housing projects. Yet, such a mental map also hides from us the *dynamic* city—whether that dynamic is historical (such as this narrative), social, or *geographical*—emphasizing the interconnections, conflicts, and tensions within Lexington. Two examples make this point. Both can be visited.

Thoroughbred Park is the southern entrance to Main Street and downtown today. On sunny days tourists can be seen admiring the bronze horse statues racing to the finish line and grazing on the slope overlooking the park. The Park anchors the downtown core as a stable, formal presence in the urban landscape. Its imagery promotes Lexington's popular association with the glamour and excitement of the horse industry; and the Park was built with private contributions to that image. It is mirrored by the office complex situated catty-corner, whose architectural features can be read as visual quotations of famous Bluegrass horse barns. Yet the site has not always been so stable. Over time, the corner of Main Street, Vine Street, and Winchester Road has served as the point where different sides of the city come together; including the retail downtown (Main Street), the railroad corridor (Vine-Winchester), a primarily African-American section of the city (to the northeast), and an early twentieth century middle class area (southwest on Main Street). This interstitial site has truly been an in-between place, and was once the home of Lexington's most famous brothel. The dynamic tensions between these competing versions of Lexington have been conquered by the Park designers, promoters, and builders. Thoroughbred Park represents more than a nice place to take family snapshots. It also is the present-day victor in competing definitions of just what is Lexington.

A few blocks up Main Street from Thoroughbred Park is the fifth Fayette County Courthouse, a handsome Romanesque structure dating from 1900 standing in a public square as the tangible symbol of local democracy. The building's north side is called Cheapside and it is filled with the usual historic plaques and statues of civic heroes. The sign missing would tell you this was once a famous slave market, where Kentucky slaves

were sold down the (Ohio) river at public auction. The square may be public, but Cheapside is an invisible reminder that American definitions of democracy and public are ever-changing. The representation of history in the Courthouse square landscape is a selective one, as is any map of the city. No doubt Cheapside means different things to different Lexingtonians. The trick to knowing Lexington, or any city, is to read not just the visible, static landscape, but to learn the social relations and hidden dimensions of urban historical geography.

3

INTERACTIONS AND CONNECTIONS

Lexington as a Center for Transportation, Communications, and Information

Stanley D. Brunn

Lexington serves as the major transportation, communications, and information node for the Bluegrass region. Those functions have historical roots that continue to be strengthened with new and improved ways of linking individuals, businesses, and offices with locations within and outside central Kentucky.

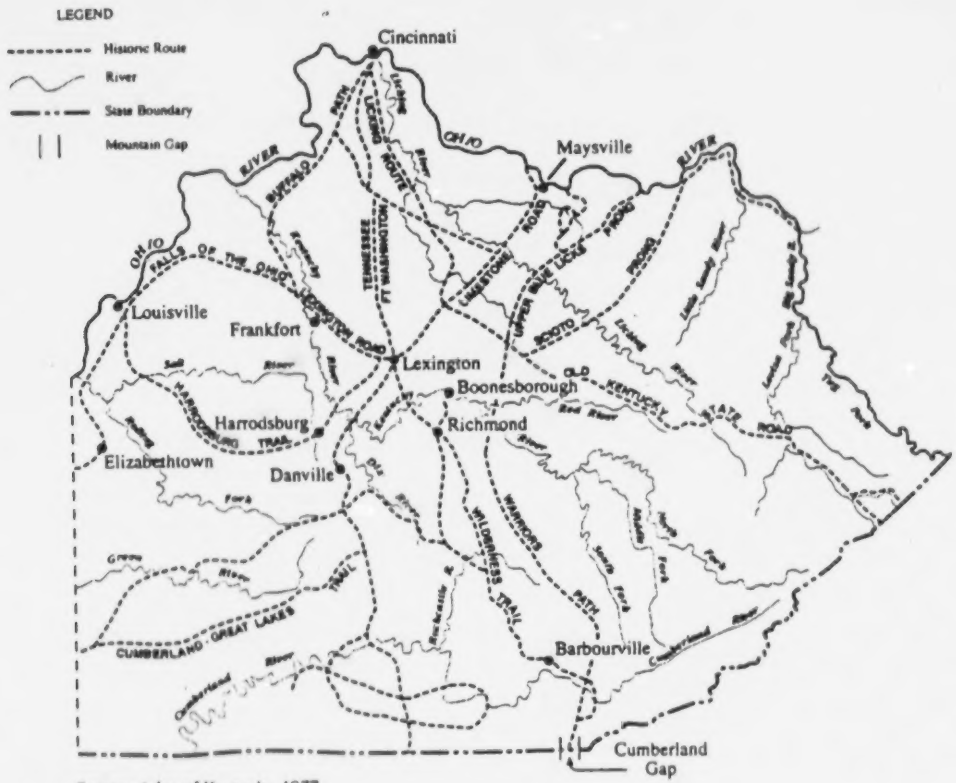
Transportation

Lexington is one of the apexes of what Kentuckians term the "Golden Triangle," Louisville and the northern Kentucky-Cincinnati metropolitan area being the other two. The sides of the triangle are the major interstates that link Kentucky with states to the north, south, east, and west (Fig. 4). Lexington is at the junction of I-75 (which goes from Michigan to Florida) and I-64 (that extends from West Virginia to St. Louis), and is also the nexus of a number of major east-west (U.S. 60) and north-south (U.S. 27 and U.S. 68) roads.

Three features of the road system in the Bluegrass are distinctive. One is that the present major highway system parallels closely the early Native American and explorer trails and routes within the state. For example, U.S. 25 closely parallels the old Tennessee-Ft. Washington Road north of Lexington and the Wilderness Road in Southeast Kentucky (Fig. 9); the Mountain Parkway roughly parallels the Old Kentucky State Road.

The second is the radial road pattern, with Lexington as the hub and the major roads as spokes linking Lexington with adjacent county seats. A cursory glance at the state highway map reveals, for example, that Versailles (in Woodford County) is connected to Lexington via U.S. 60 (Fig. 4). Similarly, Georgetown (Scott County) is astride U.S. 25, Paris (Bourbon County) is connected to Lexington via U.S. 27/68, Winchester (Clark County) via U.S. 60, Richmond (Madison County) via Interstate 75 and U.S. 25, and Nicholasville (Jessamine County) via U.S. 27. These county seats are both regional service centers and dormitory suburbs for those working in Lexington's industries and services. Although an outsider, especially someone who grew up with the rectangular land survey system, may think that it is difficult to navigate in a landscape with radial streets, local residents use these major arteries to give directions to strangers. It is not unusual to hear a Lexington native describe the city's major streets like the hands of a clock. Richmond Road is four o'clock, Nicholasville Road about seven, and Winchester nine. Or one takes Old Frankfort Pike (10 o'clock) to visit the state capital or Harrodsburg (8 o'clock) to visit Shakertown.

Figure 9: Central and Eastern Kentucky's Historic Routes



Source: *Atlas of Kentucky, 1977*

The third major feature of Bluegrass roads is that the settlement patterns along these spokes resemble beads on a string. That is, Lexington is the largest bead, the county seats smaller, and in between are a series of other settlements (smaller beads) which indicate smaller populations and lower densities. This transportation and settlement pattern is visible when flying over the Bluegrass region. At night Lexington's bright lights are very much in evidence as are the heavy traffic densities, especially along I-64 and I-75. The smaller stars of the satellite county seats and the fewer and more widely separated smaller communities can be seen by the keen observer.

The importance of the road system in Central Kentucky reveals not only the linkages of surrounding counties and county seats to Lexington but to surrounding states as well. Kentuckians, many of whom prefer life in small towns and the open country to large cities (and Lexington-Fayette County, with a population of over 225,000, is considered a large city to most Kentuckians!), think nothing of commuting sixty or ninety minutes (each way) daily to Lexington, Louisville, or Cincinnati. Some will even work in the cities during the week and return home on weekends. Thus the interstate traffic is heavy on Sunday nights and Friday afternoons. Some travel daily alone, while others form car pools. It is not unusual to see six or a dozen cars and pickups parked near major rural intersections during

the day; a check of their counties of origin from the license plates reveals the distances some women and men travel to work for low- or medium-wage jobs. Thus, the commuting fields for Lexington's businesses and industries are extensive. Another close look at the map would reveal there are no other large cities in eastern Kentucky, except for the tri-state Ashland-Huntington complex, which has about 250,000 residents. Charleston, West Virginia and Knoxville, Tennessee are the next largest cities east and southeast of Lexington.

Highways and railroads are the major networks connecting Central Kentucky to the rest of the nation. The Lexington business community often uses the city's mid-continent location in its promotion to prospective companies. One can drive to Washington within nine hours, Charlotte within eight, Atlanta within seven, Nashville within five, St. Louis within seven, Chicago within eight, and Detroit, Cleveland, and Pittsburgh within six hours; indeed, a major selling point for Lexington is that it is within one day's drive of more than one-half of the nation's population. Lexington sees this central location as a major attraction for businesses wishing to expand to the growing Sunbelt markets in the South. Probably few would consider Lexington a Sunbelt city, rather it might be termed a *hinge city* or *shadow city* between the older industrial Snowbelt cities and regions experiencing slow economic growth and those Sunbelt regions where population and economic growth are expected to continue. If one examined the economic linkages of businesses in Lexington, one would probably discover the city is more north than south oriented. That is, the branches and offices in Lexington and the Bluegrass region are more likely to have their headquarters located in Pittsburgh, Chicago, or New York rather than Atlanta, Memphis, Orlando, Nashville, or Dallas-Ft. Worth.

Lexington is served by Delta and U.S. Air, which connect the city to major hubs in the eastern U.S. Almost all traffic out of Lexington goes through Atlanta (Delta headquarters) or Pittsburgh (U.S. Air offices). Commuter flights link Lexington with Cincinnati, Louisville, Nashville, and smaller cities in surrounding states. Lexingtonians wishing to make direct flights to Europe leave from Louisville or Cincinnati. The major railroads serving the Bluegrass region are CSX and Norfolk Southern, linking Lexington with Louisville and Cincinnati. The nearest Amtrak station is in Cincinnati.

Communications

Lexington is the major newspaper and television hub for not only the Central Bluegrass but also eastern Kentucky. The newspaper hinterlands and viewersheds from Lexington-based media extend roughly halfway between Lexington and Louisville and Lexington and Cincinnati. As with transportation, there is no city in size or economic importance east of I-75 that competes with Lexington's prominence. Lexington has one major daily newspaper, the *Lexington Herald-Leader* and a weekly cultural-arts magazine, *Ace Magazine*. There are also three television stations which are part of major national networks, a Fox entertainment channel, and a fifth connected with the University of Kentucky (KET, or Kentucky Educational Television). Cable television provides Lexington-area residents with access to several dozen channels; in eastern Kentucky, however, there is no cable and satellite dishes are a common feature in the landscape. The *Lexington Herald-Leader* publishes articles of interest to readers in Lexington and Fayette County as well as the many small towns and counties to the east and south. Thus, discussions of health care in Appalachia or coal mining strikes are considered just as important news as are the woes facing Kentucky's tobacco farmers, Lexington's downtown renaissance, or the prices of horses at fall auctions. Editorials cover topics of interest to this wide readership as well. A weekly editorial column entitled "Appalachian Voices" addresses concerns by residents on that region's problems, identity, and future. Legislative decisions made in Frankfort about the Bluegrass and

eastern Kentucky will be covered in the Lexington paper as will accounts of important events in rural counties. These include wet-dry referenda, controversies over school consolidation, local officials being indicted for some criminal activity, local protests against environmental polluters, or the opening of a new branch factory (again, usually with headquarters to the north). A casual survey of the newspapers for sale in stands outside motels, Wal-Marts, and fast food restaurants in the small towns in the eastern third of the state would reveal that the Lexington paper is sold alongside the local county paper, published once or twice a week.

The coverage of news about Central and Eastern Kentucky is also evident in reporting on local television evening news. There is very little news about Cincinnati or Louisville, but there are reporters on the spot if newsworthy stories appear in Morehead, Ashland, Hazard, Pikeville, Berea, Corbin, and Danville, all considered within the communications hinterlands of Lexington. While accounts about floods, mine explosions, snow days (when school is canceled), and mountain festival days are not major local events for Lexingtonians, they are for those east of I-75. Further evidence of this *communications shed* is from the sponsors of local television news. It is not unusual to see ads from local car dealers, furniture stores, pesticide and fertilizer stores, and even attorneys in small towns surrounding Lexington, another indication of the region's small town populations and rural economy. Lexington services that will be advertised include hospitals, fast food and fancy restaurants, and automobile and furniture dealerships. Sometimes even the accent used by the speaker will be more Eastern than Central Kentuckian.

Although the local newspapers and television stations are important ingredients in the communication services provided by Lexington, there are several others. The Lexington Public Library is downtown and four branch libraries are located in the suburbs. There are also main and branch libraries of the University of Kentucky as well as the collections and various services of Transylvania University, Lexington Baptist College, Lexington Theological Seminary (Disciples of Christ), and Lexington Community College (part of the UK system). In Midway (between Lexington and Frankfort), Midway College has a strong equine studies program; Georgetown has Georgetown College (Southern Baptist); Frankfort's Kentucky State University is a predominantly African American university; Berea is home to Berea College; and the Presbyterian Centre College is in Danville. Most of these colleges and universities draw their students from Kentucky.

Basic to the communications landscape is the number and diversity of bookstores. Aside from those near campus which serve the large University of Kentucky student population, there are a number of others that cater to the community and much of eastern and southern Kentucky. There are various specialized bookstores, ranging from those with interests in educational games and school items, used and rare books, alternative cultures, religion (more than a half-dozen), and new books on a variety of subjects. These stores are located in downtown Lexington and in suburban malls.

Information

The colleges and universities mentioned above are major disseminators of information to the state and outside. Nationally and internationally recognized programs are found at the University of Kentucky, including those dealing with equine parasitology, rural health delivery, toxicology, robotics, and aging (especially Alzheimer's disease).

Lexington has companies that issue major publications for specialized agricultural interests and offices for major national companies. The horse industry, (yes, it is an industry) dominates much of the information landscape. The information services include the library at Keeneland Racetrack, the Jockey Club (part of the Jockey Club Information Ser-

vices) which has computerized genealogical records of all thoroughbreds, the publication of *Bloodhorse*, a major industry journal, and *Daily Racing Form*, which is used daily at racetracks nationwide. Additional horse industry services within and outside the Bluegrass can be obtained in a check of the yellow pages of the Lexington phone directory. There are horse dealers, breeders, and appraisers, attorneys, veterinarians, truckers, insurance agents, those selling horse feed and those building fences, barns, paddocks, and gates. Lexington architectural firms design barns and pastures and design picturesque pastoral landscapes.

Lexington is also headquarters to other economic interests. Coal companies with offices in Lexington include Island Creek, South East, and a half-dozen others. The Burley Tobacco Growers Association and the Burley Auction Warehouse Association are in Lexington, as are a half-dozen major tobacco warehouses that serve the tobacco farmers in the Bluegrass. The Center for Tobacco and Health on the UK campus receives revenues from the sales of cigarettes to examine the health effects of smoking and to perfect a danger-free product.

Numerous major associations have national offices in Lexington. These include the American Saddlebred Grand National Association, the U.S. Polo Association, and the National Tours Association, Inc. The major state lobbying offices found in this Bluegrass city include the Kentucky Cattlemen's Association, Kentucky Fertilizer and Agricultural Chemical Association, Kentucky Veterinarians Medical Association, and Kentucky Council of Churches. Private companies include Rand McNally Cartographic Services (in Versailles and Lexington) and Toyota, in Georgetown.

These specialized communication and information services are important, not only because they serve Lexington and Central Kentucky but because they have national and global linkages as well. Lexington is part of the World Trade Center network that links businesses and offices around the world. There are exchanges of information on economic growth, foreign investment, and marketing trends. Lexington's international linkages are promoted with annual presentations at trade shows nationwide and through its Sister City programs. Lexington's three sisters are all major centers of horse breeding and racing: Deauville, France; County Kildare, Ireland, and Shizunai, Japan. International money is apparent in the city and regional economy, not only in the Toyota investment in Georgetown and sales of horses and horse farms to Japanese, Irish, British, Canadians, and Middle Easterners (especially sheiks from the United Arab Emirates), but in companies investing in coal mines, timberlands, branch plants, and prime agricultural land.

Lexington is an important node for publication of specialized journals, investment, and scientific research, and also for a number of major national and international conferences held in the city and nearby each year. There are conventions and meetings of a scholarly, public service, religious, entertainment, and vocational nature. Many of these are held in conjunction with faculties at the University of Kentucky and other universities nearby. The city also seeks to develop its clean industry and strong service economy by hosting a variety of entertainment activities. Lexington attracts a variety of cultural activities, apart from large basketball and football audiences. These include rock groups, individual concert performers, traveling musical and theater productions, tractor pulls, rodeos, the Ringling Brothers circus, and antique and craft shows. Not surprisingly, the city takes pride in its national prominence as a center for bluegrass music, horse racing and sales. Many vacationers visit the Kentucky Horse Park, which has two major museums and a schedule of horse events and shows throughout the year. Historic sites, cemeteries, and museums are visited by locals and out-of-

towners as are programs at the Opera House, several neighborhood theaters, and by several music groups, including the Lexington Philharmonic Orchestra.

These are important elements for Lexington as it carves out its role in the growing economies associated with information production and exchange.

Lexington's Role and the Future

In sum, Lexington serves a very important role in the collection and dissemination of goods and services within Central Kentucky. Its highway linkages join surrounding counties, county seats, and small towns to Lexington. Those same highways place the city in a network of other places (larger and smaller) in eastern North America. Its role as a communications center is of value both to local residents, industries, and services and to selected groups outside, especially those dependent on receiving information about specialized economies or services that originate in the Bluegrass. The city's future as a major transportation, communications, and information center seems assured with anticipated population growth, expanded airline services, continued international investment, and a major place on the information highway. Those futures will be linking the region's universities and business with other parts of the nation and world, especially in specialized agricultural activities, investment, health, entertainment, and tourism.

Modern Lexington as a Regional Center

Richard Schein

According to historian Richard Wade, "the towns were the spearhead of the frontier." Lexington was a crucial trans-Appalachian spearhead of Euro-American settlement at the end of the eighteenth century. Although locally preceded in its founding by nearby Harrodsburg and Boonesborough, Lexington soon eclipsed those early outposts as the entrepôt for the new western territories of the United States after the American Revolution. Lexington was well situated as a terminus of several major migration and trade routes across the Appalachians; most notably the Ohio River route and the Wilderness Road, whose final miles led across country to the Inner Bluegrass from Maysville in the north and the Cumberland Gap in the south (Fig. 9). Its place in the middle of a rich agricultural landscape and astride major arteries of transcontinental transportation made Lexington both the center of a regional market economy and a critical node in early trade links between east coast cities such as Philadelphia and New York, and then-western ports, like New Orleans. By 1800, Lexington was the largest city in the west, a mercantile center to a vast region rapidly being incorporated into a burgeoning American cultural and economic system.

Nineteenth Century Brings a New Role

The nineteenth century, however, saw Lexington overtaken as the transmontane regional capital by river cities such as Cincinnati, Louisville, and St. Louis; its role as a mercantile center was overshadowed by an American economic shift to industrial capitalism. Despite its slip in the national urban *economic* hierarchy, Lexington consciously and purposely established and perpetuated a reputation as a *cultural* center: the city reveled in its nineteenth century designation as the Athens of the West. To make up for their loss of western economic primacy, Lexingtonians founded and supported institutions such as the only insane asylum in the United States outside of Philadelphia as well as Transylvania University which, for example, granted sixty-seven degrees in 1826 to students from

eleven states. According to Richard Wade, Lexington enjoyed a "reputation and distinction throughout the entire west."

Although Lexington's national economic reach was replaced by its role as a western cultural capital, the city did not cease to have an economic function. Rather, it continued as the market center for a curtailed economic hinterland primarily focused on the Inner Bluegrass. Lexington also became the Fayette County seat. The city's early situation, wealth, and well-educated elite combined with its local political designation and economic importance, ensured that Lexington would be at least a nineteenth century *regional* capital in the broadest social, economic, and political sense of the term. The spatial extent of that region was checked on the west and north by the similar regional functions of Cincinnati and Louisville. To the south and east, however, Lexington was relatively unchallenged in its regional dominance and its influence extended beyond the Bluegrass, especially into the Appalachian sections of eastern Kentucky.

By the early twentieth century, geographer Darrell Davis could note that Lexington was the focus of numerous primary and secondary federal and state highways, an interurban electric railroad, and several major railroads. He also recorded that Lexington in the 1920s was the retail center for two-thirds of the Bluegrass counties, while its wholesale reach extended beyond the Bluegrass into eastern Kentucky and parts of Tennessee, serving more than one million people (at a time when the state's total population was about 2.5 million). Lexington's importance to and Bluegrass symbolic dominance of eastern Kentucky is perhaps best captured in local colorist John Fox, Jr.'s famous novel *The Little Shepherd of Kingdom Come*, published in 1903. The book's rags-to-riches Appalachian mountain hero is discovered to be a blue-blooded Bluegrass aristocrat whose ultimate reward is to take his rightful place within the Lexington squirearchy. Apparently, making it in the mountains meant making it *to* Lexington.

All Roads Still Lead to Lexington

Today, at least within central and eastern Kentucky, it would still appear that all roads still lead to "Athens." Contemporary Lexington may no longer be the entrepôt for the trans-Appalachian west. It may no longer be even the Athens of the west. Yet, a contemporary road map depicts Lexington as the hub of a series of radiating spokes connecting the city's 225,000 people with surrounding county seats and secondary towns and the city is still at the top of the region's central place hierarchy. Lexington's place at the center is more than simple geometry. The city maintains a physical centrality within the Bluegrass while it stands as the economic, social, and symbolic capital of the region broadly defined.

Lexington's regional dominance is most easily discerned through the city's economic retail and service functions. The city has boomed since World War Two, and nowhere is that fact more apparent than in the tangible features of seemingly endless suburbs, commercial strip developments, shopping centers, and malls. Many of these stores serve more than the immediate urban population, a fact suggested by a recent informal study by undergraduate geography majors at the University of Kentucky. Students took a sample of more than 2,000 automobiles over a four-day period at the city's largest shopping mall in order to ascertain shopper origins. License plates were recorded as indicators of driver origins (Kentucky registers and identifies vehicles by county). Although most shoppers were from the immediately surrounding retail hinterland (defined as the seven counties of the innermost Bluegrass), a significant proportion of the automobiles were registered in an expanded hinterland that reached on the south and east as far as Tennessee, Virginia, and West Virginia.

The mall example suggests that contemporary Lexington is the economic focus of both central and eastern Kentucky. Historical geographical circumstance has limited the city's hinterland on the north and west where

it overlaps with the functional presence of Louisville and Cincinnati; while to the south and east there has been little inter-urban competition for an expanding Lexington presence into the Appalachian portions of the state. The industrial penetration of outside capital, railroads, and laborers is a centuries-old story in Appalachia, and Lexington has traditionally been a jumping off point between the outside and the mountains. That relationship is remnant today and accounts, in part, for the regional dominance of Lexington beyond the inner Bluegrass.

Several examples make the point. The *Lexington Herald-Leader* is the city's newspaper. It enjoys a Sunday circulation of more than 150,000 and the paper's blue, free-standing home-delivery boxes can be seen on country roads 150 miles (241 kilometers) from the city limits. Its "Local" and "Letters to the Editor" sections reflect a wide ranging circulation as the only paper linking all of Kentucky's Appalachian counties. Lexington's five television stations and weather reports are as likely to include flash-flood warnings for mountain residents as storm conditions for the Bluegrass portion of tornado alley. The city has nine hospitals, seven of them major medical facilities. Medical helicopters regularly fly overhead from remote accident sites, and the city often reverberates with ambulance sirens arriving not only from Bluegrass towns like Paris and Versailles but also from vans bearing names like Barbourville, Pikeville, Somerset, and London, all cities well beyond the Bluegrass limits. A patient in the University of Kentucky hospital and clinic is likely to meet people from all over the eastern half of the state in its waiting rooms. A well-qualified surgeon from a well-equipped hospital in Somerset once remarked that to many of his patients, a medical problem in Somerset is invariably the doctor's fault, while one in a Lexington hospital is an act of God. Those out-of-staters who arrive in Lexington via airplane land at Bluegrass Field with Kentuckians who still have several hours of hard driving over mountain roads ahead of them before they finally reach home.

Symbolic Heart of the Bluegrass and Beyond

Beyond (yet related to) the obvious economic centrality of Lexington is the city's continuing role as the symbolic heart of the Bluegrass and capital of the state's central and eastern parts. Lexington is more than just the site of the region's largest malls (indeed, newly-expanded Fayette Mall on Lexington's south side is now the state's largest) and best equipped hospitals; it also represents in urban form that which is characteristic of the wider region. For example, tobacco and horses are central to Kentucky's collective personality as well as its economy. Lexington is the largest burley tobacco market in the world, and is home to the Burley Tobacco Grower's Association which administers tobacco price supports. Bluegrass horse farms are marked in red on tourist maps by little horsehead symbols, centered on Lexington. Horse imagery abounds within the city (and, indeed, all across the state: witness the Kentucky license plates), from signs advertising banks, to public statuary, to the architectural form of shopping malls and office parks (see Karl Raitz's chapter on horses in this guide). In fact, when Calumet Farm, arguably the most famous of Bluegrass horse farms, recently was put up for auction as part of bankruptcy proceedings, former Lexington mayor Scotty Baesler seriously suggested that the city buy only the farm frontage in order to maintain for Lexington the white fenced-image of rolling pasture land and gentleman farms.

Examples of Lexington's centrality to wide ranging social networks are numerous. The small size and physical proximity of Frankfort, the state capital, means that Lexington has usurped some regional and statewide political functions. The Lexington newspaper disseminates political news to a regional audience, and early morning westbound traffic (or late afternoon eastbound) along the broad, four-lane ribbon

of US 60 between the two cities suggests that many state workers prefer to live in the Lexington environs rather than in the capital. The University of Kentucky is a great promoter of Kentucky unity and pride through its academic activities and especially its basketball program. Lexington is the habitat of the UK Wildcats, the holy shrine of the vast expanse of Wildcat Country proclaimed by billboards and bumper stickers statewide. Lexington is the collection center for a milkshed with an eighty-mile radius, and the city's stockyards are long-standing in a state where cattle production is the third largest agricultural activity. Although hardly famous for its liberality in a national context, Lexington does display a greater range of people and lifestyles than much of Kentucky. The city serves as a safe haven or mecca for Kentuckians searching for a degree more tolerance and diversity than is found in conservative parts of the hinterland.

In short, by almost any measure, Lexington has developed over the last two centuries as an important central place serving a wide region. The city stands as the economic focus of a vast hinterland, stretching at its greatest extent from the Ohio Valley to the Tennessee Valley. It symbolizes the need for and existence of a regional urban focus by hundreds of thousands of Kentuckians, not to mention a few residents of at least three adjoining states. Lines of transportation, communication, economy, polity, and social cohesion radiate from the city, visibly and invisibly, to tie together a vast territory and numerous human activities to the city, the modern regional capital of central and eastern Kentucky.

Horse Breeding and Racing

Karl B. Raitz

The Kentucky automobile license plate features two symbols that evoke one of the state's major industries: a striding mare and foal, and the roof line of Churchill Downs, the race track in Louisville where the nation's most prestigious thoroughbred horse race, the Kentucky Derby, is held each May. The horse industry has several important facets. Thoroughbred breeders produce horses that run at the tracks across the country and in Europe. Standard bred horses also race but wear a harness—it is called harness racing—and pull a two-wheeled sulky and driver. Some horse farms breed Tennessee Walking Horses, Arabians, or hunters and jumpers. Each year Kentucky horse farms produce between 8,000 and 9,000 thoroughbred foals out of a national crop of about 49,000. No other state produces more thoroughbreds than Kentucky. As an industry, horse breeding and racing employs more than 79,000 people in the state. From an estimated 4 to 5 billion dollar investment in horses, horse farms, and related equine businesses across the state, people receive more than 1.3 billion dollars in wages and salaries or about 4.5 percent of the total wage and salary income of all state residents. Perhaps the best known segment of this industry is thoroughbred breeding and racing. Of course the Kentucky horse racing industry is a major part of the national and international racing business, but of all the states where thoroughbreds are bred and raced, none plays a more central role in fostering the sport than Kentucky. Within Kentucky, no region is more important to horse breeding and racing than the Bluegrass, especially the Inner Bluegrass.

The Obvious Geographical Question

The obvious geographical question, then, is why have the people involved in breeding, training, and racing horses chosen to concentrate their horse farms and associated businesses in this relatively small portion of a medium-sized state? The Lexington phone book *Yellow Pages*, for example, lists five pages

of horse-related businesses, including 191 farms, international horse brokers, horse transportation companies and horse van manufacturing firms, farriers and saddle makers, computerized pedigree record-keeping firms, and the largest collection of equine veterinarians in the world.

To answer the question we need to consider several contributing factors. The first is historic precedent and inertia. Horse racing began in the Cavalier Colonies of Maryland and Virginia before the Revolution as short, quarter-mile sprint races between two horses, and racing was reserved, by Virginia law, for gentlemen. When horses with Arabian blood and greater stamina and endurance were imported into Virginia, beginning in the 1730s, races lengthened to a mile or more and oval tracks replaced the short straight race paths. Virginians and Marylanders began migrating into the Bluegrass Region by the 1780s bringing their habits and customs with them, including horse racing. In part because southern gentlemen farmers—be they in Virginia or Kentucky—imported the best breeding stock they could afford from Europe, their horses were faster, won more races, and so were favored as racers and breeding stock by people across the eastern states. By the 1840s, the Kentucky Bluegrass region had become America's thoroughbred nursery. Although the Civil War disrupted the horse industry, and many farms lost their stock to Union and Confederate cavalries, the business revived quickly and race tracks were common in most states east of the Mississippi River—Kentucky had seventeen race tracks, for example, and hundreds of tracks appeared across the Middle West from Ohio west to Missouri. The demand for racing stock rose with the number of tracks and Kentucky's horse farms supplied the best horses.

After Historic Precedent, Environmental Circumstance

Special environmental circumstance is the second factor that helps explain the concentration of horse breeding in the Bluegrass Region. The Ordovician limestones that underlay the area produce deep, fertile soils that in turn yield lush grass, ideal for livestock, especially horses. The area is far enough south that grass will grow eight or nine months of the year, allowing farmers to rely upon pastures for feed rather than the more expensive baled hay. The summers are warm, but not so hot that horses do not thrive, and the (usually) mild winters are conducive to mares foaling in February or March without concern for newborn colts or fillies being exposed to sub-zero temperatures.

A favorable climate also relates to horse training and the national racing circuit that is predicated upon the change in seasons. Because of Kentucky's temperate winter and summer seasons, outdoor horse training can go on almost year around. Training or racing horses in cold northern climates on frozen tracks risks injury to horse and jockey alike. Although some horse racing is conducted in selected northern cities almost all year long, most trainers and the best racing stock follow an annual circuit, with Kentucky at the midpoint. The Florida and Louisiana race tracks operate during the winter months and trainers and their horses concentrate in these areas. As the season progresses, they move north to Hot Springs, Arkansas, and then, by early April, to Lexington, Kentucky. After the month-long season at Lexington's Keeneland Race Course ends, the horses move to Churchill Downs in Louisville for May, and from there some may head for Pimlico Race Track in Baltimore, or the Belmont course in New York. By midsummer thoroughbred racing reaches tracks in Saratoga, New York, or New Hampshire. Then as fall approaches, the entourage again heads south, pausing for another season in Kentucky during October and November before returning to Florida and Louisiana for the winter.

Other Geographic Factors—and Good Genes

Continued profitable production of race horses also depends upon a third factor, transportation requirements. Horse transport, in turn, is related to two other facts: one is that the Bluegrass Region has the largest concentration of high quality race horse stallions and mares in the nation—think of it as a bank of thoroughbred genes. The other is a law that prohibits breeding thoroughbreds by artificial insemination. Since stallions and mares must mate naturally, rather than through artificial means as is so popular with dairy and beef cattle farmers, they must be located in close proximity to one another. Part of the reason for this is the convenience and safety considerations of moving multi-million dollar horses over public roads, part relates to the short fertility period for mares and the need to bring the mare to the stallion as soon as she is able to conceive. Some horse farms keep a stallion or two on the premises, but most farms specialize in one aspect of the horse industry, not all. For example, a stud farm may have ten or more stallions and provide stud service to anyone who can afford the fee—up to 100 thousand dollars or more for one *season* or a single mating of mare and stallion. Other farms may specialize in raising mares and foals and preparing the young horses for the race track.

National and international economic connections also support a continuing horse breeding and racing industry in central Kentucky. The horse business is capital intensive. Farm land may cost $10,000 per acre or more—and that's for raising grass, not high-valued vegetable or fruit crops. Proper horse barns with carefully engineered air circulation, fire-preventing sprinkler systems, and floors of pliable materials that will drain well but not aggravate a horse's leg joints or tendons, may cost a half million dollars or more each. Some farms have several such barns. Buying breeding stock is also expensive; quality mares often command higher prices than stallions. Although one can purchase a thoroughbred for $10,000 or even less, the stock with the best blood lines will usually require an investment of at least $100,000 per animal, and often much more than that. Then one must consider breeding fees, veterinarians' fees—some farms hire a vet full time for their staff—insurance, feed, employees to handle the stock, fences—white plank fence may cost $10,000 per mile—hard surface roads, and so on.

Many Kentucky horse breeders and trainers are local farmers but they often depend upon investors from other places to buy their stock or provide capital to continue operations. Other farm owners are wealthy sports people whose fortunes stem from industry or inheritance, and who indulge in horse racing as a hobby and keep a Bluegrass breeding farm as an avocation. In the nineteenth century this latter group was represented by James Ben Ali Haggin who made millions as an attorney in California, and whose special forte was the adjudication of land claims and water rights. Born in the Harrodsburg area southwest of Lexington, Haggin returned to the Bluegrass in 1887 and began to assemble a 10,000 acre property northeast of Lexington that he called Elmendorf. The farm became a show place, one of many built by outside money. Today, the Bluegrass Region attracts international farm owners from England, the Middle East, and Japan, as well as North America, and new horse farms—assembled from existing cropland—appear whenever the national economy is strong.

A Happy Coalescence

This happy coalescence of historic, physical, transportation, and economic factors, has resulted in a horse industry that is of substantial economic benefit to the state. It attracts investment from far-flung sources. The Bluegrass countryside is naturally beautiful, but the horse farms have refined portions of the countryside into a high art of rolling green pastures lined by white and black plank fences. In May, when the farm lanes are lined with flowering dog woods and red buds, few

places in America are more beautiful. Visitors seduced by cleverly produced brochures prepared by state or city Chambers of Commerce or tourist bureaus contribute millions of dollars annually to motels, restaurants, and other local businesses as they attend the race meets or simply drop off the visually sterile Interstates to revel in the luxuriance of it all.

Automobiles and the Japanese Connection: Toyota in Kentucky

Susan Roberts

The Inner Bluegrass region is now home to the largest Japanese automobile plant in the United States. The Toyota Motor Manufacturing (TMM) facility located on the outskirts of Georgetown in Scott County, some fifteen miles (24 kilometers) north of Lexington, employs 5,200 people and turns out 220,000 to 240,000 Toyota Camrys per year (see Fig. 4). By 1995 the facility will be able to produce 400,000 cars a year (or 1,095 cars per day). The economic effects of the Toyota plant in Georgetown have been felt throughout the region. The social, cultural, and political influences of such an enormous investment by a Japanese corporation have also been significant.

Georgetown, Kentucky, is not the only small town in North America to have been transformed by the arrival of a Japanese auto transplant. Nine transplants are in the United States and three in Canada. Nor was Georgetown the first. By 1985 when Toyota decided to locate its first plant in Kentucky, the Honda plant in Marysville, Ohio, had been producing cars for three years, and Nissan had started production at its Smyrna, Tennessee, plant in 1983. Such plant start-ups are indicative of a re-shaping of the North American, indeed global, geography of automobile production in the 1980s. This shifting geography of automobile production largely resulted from the spectacular rise of Japanese motor vehicle manufacturing. In 1960 Japan produced 165,000 cars and these accounted for just 1.3 percent of the world's total automobile production. In 1989, by contrast, Japan produced nine million autos, or 26 percent of the world's total production. The rise of Japanese auto production has been paired with a decline in United States production over the same period. The total output of all the Japanese transplants in the U.S. is still much less than the combined output of the U.S. "Big Three" auto makers (General Motors, Chrysler, and Ford) but nonetheless represents a major challenge. The Big Three's share of the U.S. new car market has fallen over the last twenty years and the market share for imports and transplant-produced vehicles has increased.

Japanese Cars in the U.S.: Why and Where?

Why would Japanese auto manufacturers set up transplants in the United States? The Japanese producers, as late as 1982, did not have a single car production facility outside Japan. The U.S., however, is the world's largest market for new cars and as the market share of new car sales captured by the Japanese producers increased it made sense for the Japanese producers to consider locating production closer to their market. An alternative (and more cautious) strategy was to set up a joint venture with an American producer. In 1984 Toyota set up a joint venture with General Motors in Fremont, California (Fig. 10). The New United Motor Manufacturing, Inc. (NUMMI) produces GM Geo Prizms and Toyota Corollas as well as small pickup trucks. A more significant impetus to Japanese investment in the United States was that since 1981, the U.S. and Japan had negotiated voluntary export restraints that had restricted the number of vehicles the Japanese could bring into the U.S. in a year. More recently, in the

Figure 10: Japanese Automobile Factories in the U.S.

1990s, the strength of the Japanese Yen (against the world's major currencies—including the U.S. Dollar) has meant that cars manufactured in Japan and sold in the U.S. are expensive compared to domestically produced vehicles. By manufacturing the cars in the United States this effect of the strong Yen (or more generally the risk of changing exchange rates) can be avoided. The strong Yen (versus the Dollar) is the main reason for the recent transplant expansions.

The next question is: why are the Japanese transplants located where they are? The transplants are, with the exception of the NUMMI plant, sited along a corridor from Michigan to Tennessee (Fig. 10). Six contiguous states have transplants: Michigan, Illinois, Ohio, Indiana, Kentucky, and Tennessee. Most (although not all) of the transplant operators selected greenfield sites in rural areas away from the traditional motor vehicles producing locations such as Michigan. As geographer Peter Dicken (1992, 296) has noted: "[t]he advantages of being able to start from scratch, on greenfield sites, with newly designed plants and with a hand-picked workforce prepared to accept new working conditions and practices are enormous."

In a case-by-case study, Robert Perucci (1994) has found that conventional locational explanations do not capture some of the most important factors in the transplants' location decisions. In particular, he notes that the role of state government is extremely important. To lure each transplant to the corridor, state governments have offered parent Japanese companies attractive incentive packages. To recruit Toyota, Kentucky's initial incentive package included land acquisition, site im-

provements, highway improvements, and employee education and training, all paid for by the state. The total cost of Toyota's incentives to the Commonwealth of Kentucky has been variously estimated at $125,000,000 to $350,000,000. A recent University of Kentucky study (commissioned by Toyota) put the figure at $147,000,000 (Haywood 1992).

Kentucky as an Activist State

This level of state involvement has led scholars to note the rise of the activist state in processes of industrial location as states compete against one another for investment. In the final stages of the Toyota location decision, Kentucky was competing against Georgia, Indiana, Kansas, Missouri, and Tennessee. The Governor of Kentucky at that time—Martha Layne Collins—believed she had lost the Saturn plant (a GM Japanese-style production venture) to Tennessee and was determined not to lose Toyota. She made eight visits to Japan as part of a sustained campaign to sell the virtues of her state to Toyota executives.

On December 10, 1985 the *Louisville Courier-Journal*'s headline announced: "It's official: Kentucky gets Toyota." The groundbreaking ceremony for the Georgetown plant took place in May, 1986 and the first Camry was produced in May, 1988 with volume production beginning two months later. The plant has since expanded considerably and in October, 1993, the one millionth Camry rolled off the line. The plant now produces at an astonishing rate: one Camry every fifty-five seconds. The Georgetown plant is on an eighty-five acre site and the original manufacturing plant had a total area of 3.7 million square feet. In 1987 company officials announced the first expansion—a $300 million power train plant. This plant manufactures four-cylinder engines and axles for the Camry. In 1992 the power train plant was expanded to produce six-cylinder Camry engines that had previously been imported from Japan. The largest expansion has been of the manufacturing facilities that were enlarged in an $800 million, 3.2 million square foot expansion announced in 1990, and began production in March, 1994. This expansion will double plant capacity. Beginning in the fall of 1994, the new facilities will be the world's only source of the Avalon, which replaces the Cressida. This is a more expensive model than the Camry and has been designed for the near-luxury market in the United States and elsewhere.

Competition for jobs at the Toyota plant has been fierce. For example, according to a November 15, 1989 *Lexington Herald-Leader* article, Toyota received more than 67,000 completed applications for the original 3,000 jobs. Applicants go through a lengthy series of assessments. All of those selected had completed high school and 25 percent had college degrees. One-quarter of the first group of hires were women and 13 percent were minorities. Toyota gives preference to Kentuckians and as a consequence more than 96 percent of their employees are from Kentucky. In fact, the company boasts that workers come from 112 of Kentucky's 120 counties. Workers at the Georgetown plant are organized into teams and are known as team members. Teams are led by team leaders, not foremen, and each team is responsible for a set of assembly operations. The production methods employed at Georgetown are typical of what is known as *lean production*. This type of mass production was perfected by Toyota in Japan and has been transferred (and modified) to its facilities around the globe. Lean production is characterized by the just-in-time process in which parts are not stockpiled in warehouses but are manufactured in exact amounts by suppliers in response to short-run demand. Toyota works closely with its parts suppliers to coordinate production and to develop components. In addition to just-in-time parts supply, the Toyota plant also uses another hallmark of lean production: *kaizen* or continuous quality improvement. Each team works hard to insure quality output and to improve the efficiency of the production process. This is to cut waste and to reduce the amount of time spent repairing or reworking

to correct mistakes. In sum, the lean production system is much more flexible than the archetypal mass production assembly line operations typical of the Big Three American auto makers in the 1970s. Lean production is better able to respond to changing market conditions.

The Regional Impact

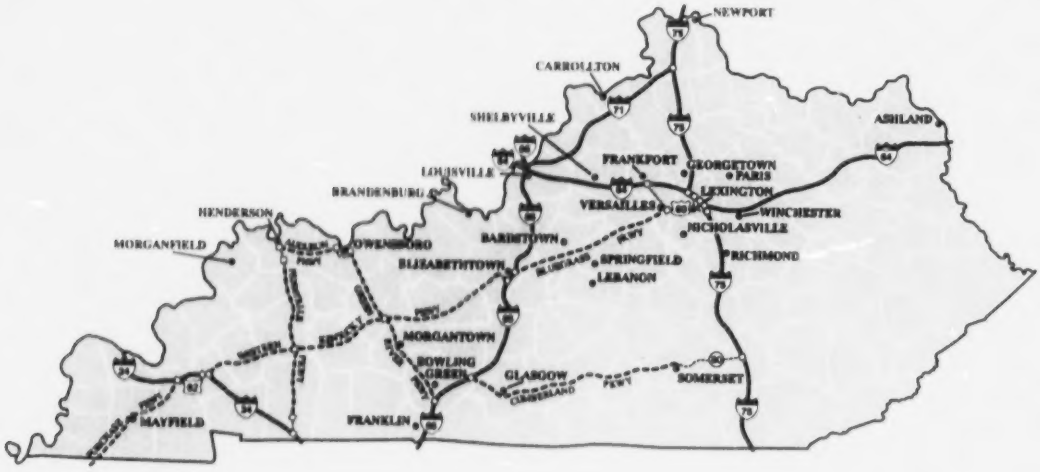
Perhaps the biggest questions Kentuckians ask about the Georgetown plant concern the facility's regional effect. Beyond the immediate influence of payroll (in excess of $180 million per year), the repercussions of the Toyota plant on Georgetown and Scott County has been tremendous. Tax revenues from Toyota supply more than 20 percent of the local governments' yearly operating budgets; property prices in the area have increased; the school budgets have grown from contributions by Toyota (in lieu of taxes) and so on. In addition to the automobile plant payroll and its multiplier effects (as pay gets spent in the region) the investment by Toyota also has created construction jobs, and a demand for materials and equipment for site development. Further multiplier effects are seen through the network of suppliers that has developed in Kentucky and elsewhere (Fig. 11). Toyota, like all transplant operators, is under severe pressure to increase the domestic content of its vehicles. This entails buying more and more material (such as steel) and parts (such as wheels) from domestic sources. Indeed, TMM buys parts from 174 U.S.-based suppliers. About forty Kentucky firms now supply parts for the Camry. At least nine of these firms are Japanese-owned and seven are joint ventures between Japanese and U.S. corporations. The issue of ownership and the definition of what is a domestic supplier or a domestic product remains politically charged and is unresolved. Nonetheless, these plants employ a significant number of employees who in turn contribute to other sectors of the regional economies where the plants are located, although in the case of the Kentucky suppliers it is worth noting that only one (Armco Steel in Ashland) is located in the state's poorest region—the Appalachian east.

Some intense political battles have been fought over the state-granted incentives package for Toyota. Some people have argued that Kentucky overpaid for the plant but as the plant has expanded this criticism is heard less often. Although Toyota has an active public relations program to counter any criticism and to keep relations with the community agreeable, critics have raised questions about plant working conditions. For example, the work is physically stressful and some have said the team idea is mentally stressful as workers are socialized to be good corporate citizens. The environmental effects of the plant are largely unknown, but local environmentalists are concerned that the site is monitored properly and that waste is disposed of safely.

A Kentucky Window on the Global Economy

The huge Toyota plant in Georgetown offers a fascinating window on the changing global economy. The development of the biggest automobile manufacturing plant in the U.S. outside a small county seat in the Kentucky Bluegrass has brought with it changes to the local economy, politics, society, and even culture. The globalization of the world-economy has created new geographies of such scope and complexity that old categories are thrown into question. Consider the arguments over whether or not the Toyota Camry built in Georgetown, Kentucky by American men and women can be considered an American car. Boundaries are being blurred.

Figure 11: Toyota's Kentucky Suppliers (1993)



Supplier Product Ownership

ASHLAND
ARMCO Steel-Steel (Japan/US)

BARDSTOWN
Trim Masters-Door trim (Japan/US)

BOWLING GREEN
NASCO-Coil springs (Japan/US)

BRANDENBURG
Intac(Olin)-Paint (Japan)

CARROLLTON
ATO Chemical-Coating pistons (US)

ELIZABETHTOWN
Ambrake-Drum brakes (Japan/US)
AP Technoglass-Glass (Japan)
Gates Rubber-Hoses (US)

FRANKLIN
Franklin Precision-Throttle bodies (Japan)

GEORGETOWN
Johnson Controls-Seats (US)

GLASGOW
ACK Controls-Cables (Japan/US)
Central Spring-Cables (Japan)

HENDERSON
Gibbs Die Cast-Alum. die castings (US)

LEBANON
Angell Mfg.-Trim (US)
Curtis Maruyasu-Tubing (Japan/US)

LEXINGTON
Ashland Petroleum-Gasoline (US)
Bresult Chemical-Solder, flux (US)
Bruening Bearing-Scaler (US)
General Rubber-Adhesive inserts (US)
Quik Tool-Metal stamping (US)
Star Tool Mfg.-Metal stamping (US)

LOUISVILLE
Akzo-Reliance-Paint (US)
Ashland Chemical-Solvent (purge) (US)
Burns Enterprises-Die cut paper (US)
DJ Inc.-Molding (US)
Johnson Controls-Battery (US)
Louisville Forge-Forged crankshafts (US)
Premiere Polymers-Resins (US)

MAYFIELD
General Tire-Tires (Germany)

MORGANFIELD
United Technologies-Interior plastic (US)

MORGANTOWN
Sumitomo-Wiring harnesses (Japan)

NICHOLASVILLE
Thompson International-Wheel covers (US)

PARIS
Central Light Alloy-Aluminum wheels (Japan)
Central Mfg.-Steel wheels (Japan)

RICHMOND
Continental Metal-Stamping (US)
Process Mfg.-Metal stamping (US)

SHELBYVILLE
Ichikoh-Mirrors (exterior) (Japan)

SPRINGFIELD
Springfield Products-Armrest assemblies (Japan)

VERSAILLES
United L-N Glass-Glass (Japan/US)

WINCHESTER
Apollo-Grease (US)

Source: Lexington Herald-Leader, Dec. 1993

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4

LEARNING ACTIVITIES

Nijel Clayton and Kate Greer Fischer

The following six learning activities or instructional units are presented in the context of the topics and geographic locations discussed in this site guide, Kentucky, the Bluegrass region, or Lexington. Teachers can adapt the activities to other states, regions, and cities by altering the topics or places. Included are five state outline maps (drainage, physiographic regions with names, physiographic regions without names, counties with names, counties without names) that teachers can reproduce and use in the context of the activities included, or with other activities. We hope you find the learning activities and maps useful in teaching about Kentucky, or about the geography of your state or region.

Kentucky's Physical Landscapes

Nijel Clayton

Introduction: This lesson addresses the physical and cultural features of Kentucky's six physical regions.

Grade Level: Grades 4-5

Time Required: 3 weeks

Themes/Key Ideas: Location, place, region

Vocabulary: absolute and relative location, mental map, scale, climate, culture, neighborhood, population, sense of place, boundary, state, region, physical landscape, cultural landscape, natural resources

Objectives:

- Students will recognize that everything has a location.
- Students will use geographic sources of information and data for a specific purpose.
- Students will explain the influence of geographic factors on human movement.
- Students will compare regions to identify unifying characteristics.
- Students will analyze physical characteristics (e.g., landforms, waterways, climate, natural resources) to explain human and regional relationships.
- Students will understand that people's use of a place can change over time.

Materials:

- Map of Kentucky's physical regions

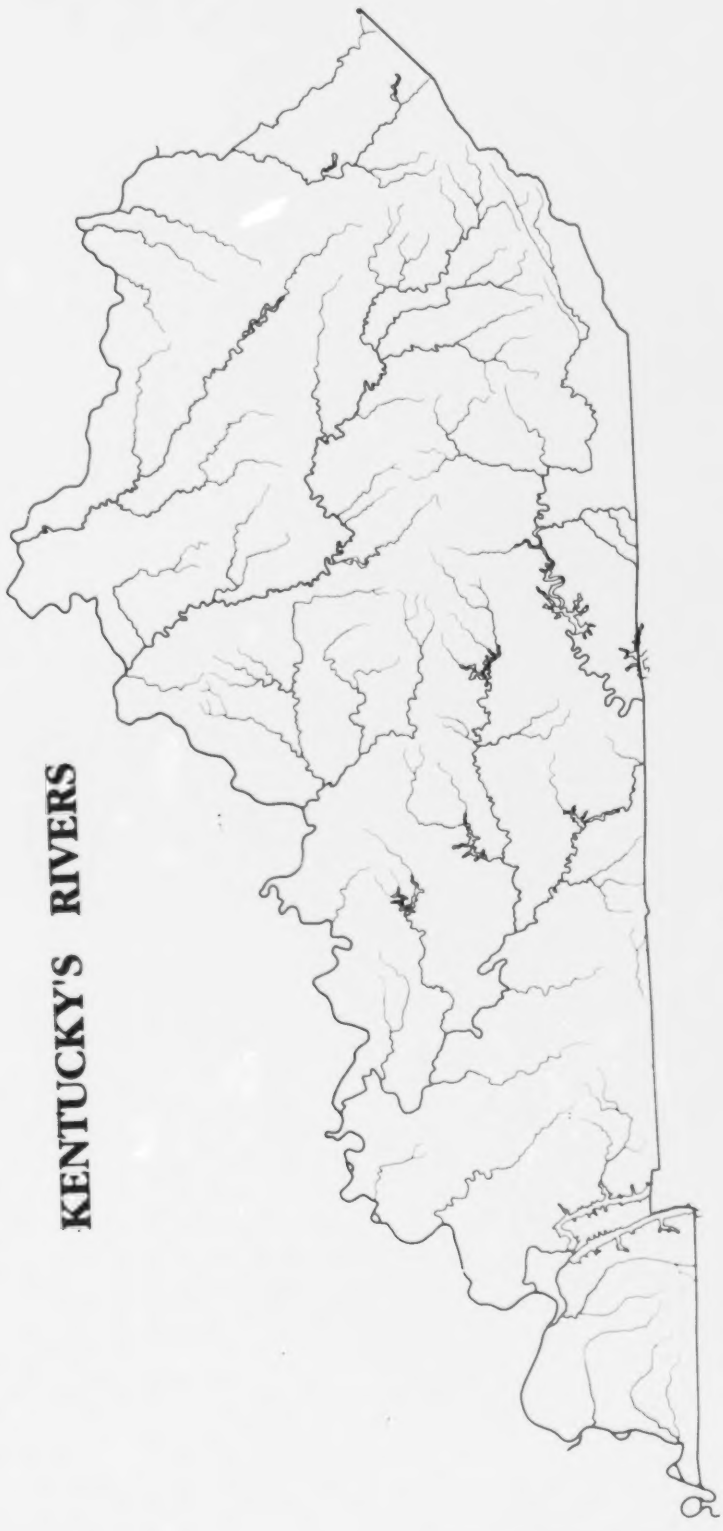
The Learning Activity:

- *Executing the activity*: Show students a map of Kentucky with the physical regions and explain that each region is defined by its distinctive landform features. Discuss each region including an emphasis on points of local interest. Assign groups of students to each physical region and explain that each group will be responsible for designing a travel brochure for its region. Students will need to investigate their region to determine those physical and cultural features to include in their brochure. Students can use several kinds of information for these brochures: photos, videos, historical information about the settlement and use of their region's resources, maps showing cities, roads, lakes, rivers, woodlands; information on the region's plants and animals, and any other information available that will help the students assemble an informative brochure. Sample brochures of non-Kentucky regions and attractions would be helpful, as examples. Upon completion, the groups will present their brochures to the class.

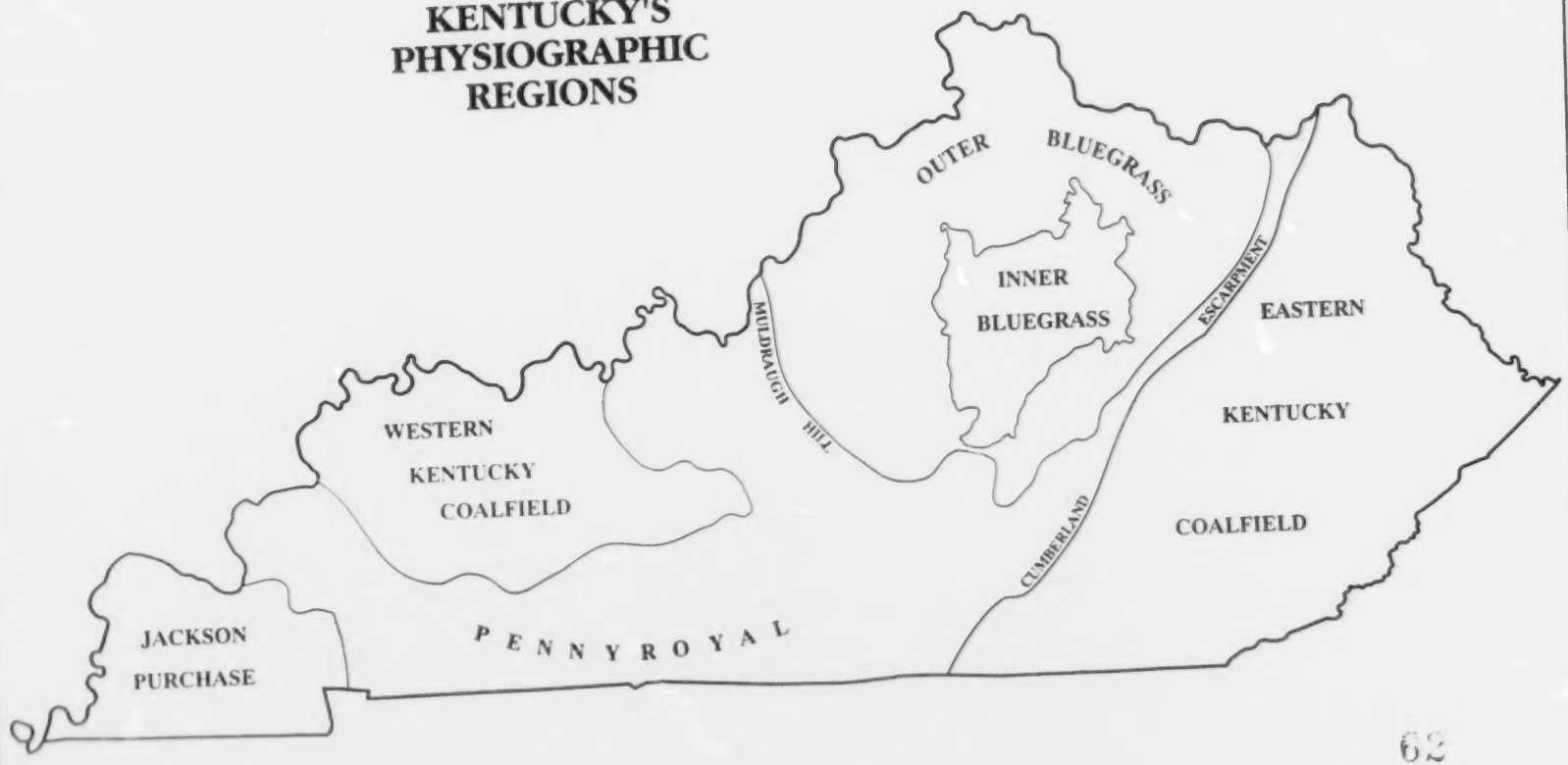
- *Concluding the Activity*: Following the presentation of the brochures, the class will discuss the project and the following items:
  - ☐ What makes Kentucky unique?
  - ☐ What makes Kentucky's physical regions unique?
  - ☐ Did the brochures present a realistic picture of the regions?
  - ☐ What did you learn from this activity?

- *Evaluating the Activity*: Informal assessment could be conducted using the above questions and observation of the activity. Formal assessment could be conducted using a teacher or student designed evaluation.

- *Alternative Strategies:* This lesson is designed to accommodate the various needs of special groups. Extension opportunities are also intrinsic because the design of the activity allows for student input and flexibility.

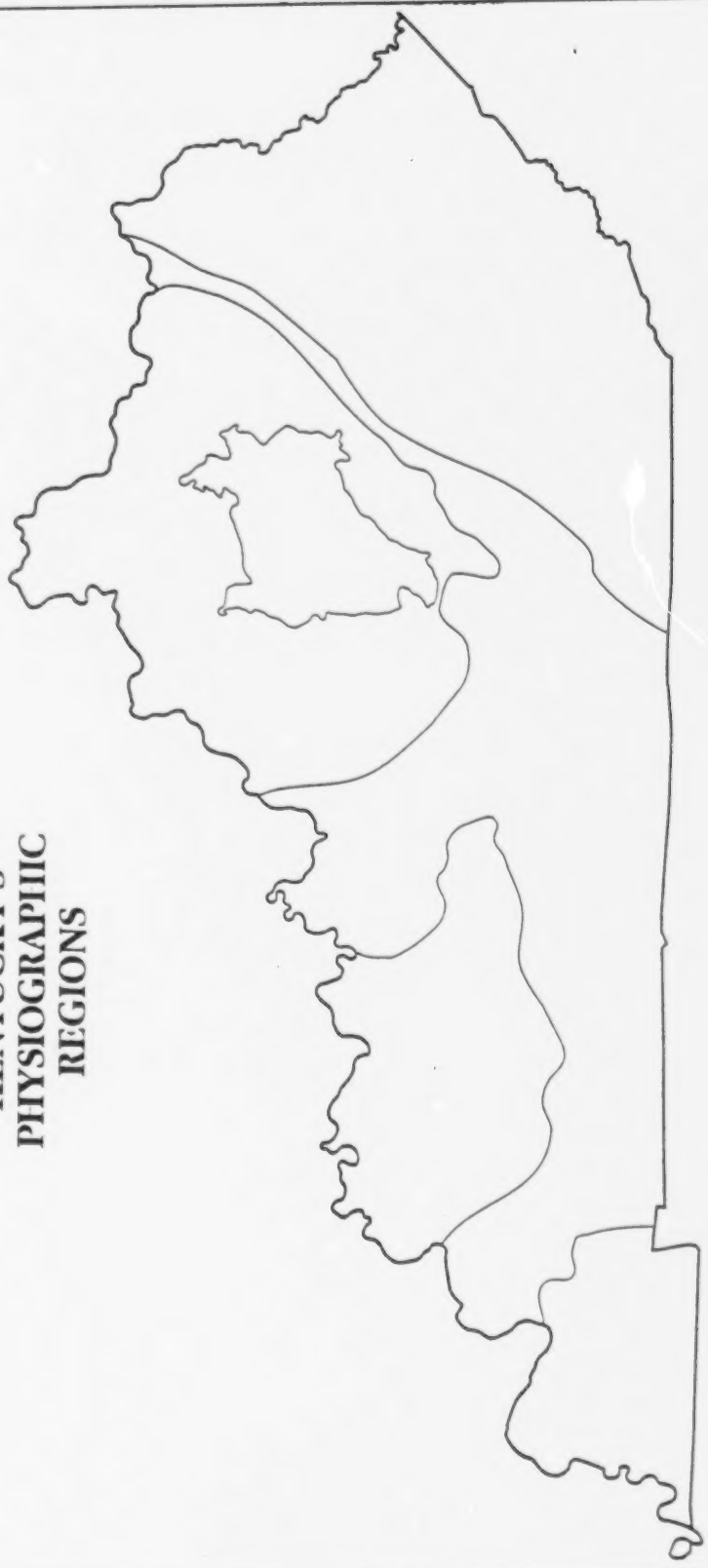


KENTUCKY'S RIVERS


KENTUCKY'S
PHYSIOGRAPHIC
REGIONS
OUTER BLUEGRASS
INNER
BLUEGRASS
MULDRAUGH HILL
ESCARPMENT
EASTERN
KENTUCKY
COALFIELD
WESTERN
KENTUCKY
COALFIELD
CUMBERLAND
PENNYROYAL
JACKSON
PURCHASE

61

62



KENTUCKY'S
PHYSIOGRAPHIC
REGIONS

Tobacco—King or Curse?

Kate Greer Fischer

Introduction: Recently a profusion of articles has appeared in the media about the possible harmful effects on tobacco. Yet, in Kentucky it is a major cash crop. This lesson traces the growth, marketing, and manufacturing of tobacco and explores its probable health hazards.

Grade Level: Grades 4-8

Time Required: 1 week

Themes/Key Ideas: Place, human-environment interaction, region

Vocabulary: burley, suckering, stripping, auction, agriculture, climate

Objectives:

- Students will learn about tobacco from its cultivation through manufacturing.
- Students will use geographic sources of information and data for a specific purpose.
- Students will analyze geographic characteristics to explain human and regional relationships.
- Students will evaluate the influence of geographical factors in real-life decisions.
- Students will learn about the probable health problems resulting from the use of tobacco.

Skills:

- Students will realize that certain physical and economic conditions are needed to raise and market an agricultural product.
- Students will observe (through research) the human and physical characteristics of places.
- Students will translate tabular and graphic information to verbal form.

Materials and References (see "Further Readings and References Cited" section and appropriate maps included):

- Kleber, *The Kentucky Encyclopedia*.
- County outline map for mapping tobacco grown in Kentucky counties.
- Most recent statistics showing burley tobacco production by county (included).
- Encyclopedias, periodicals, *Louisville Courier-Journal* (e.g., see "Life Without Tobacco, 19 June 1994), *Lexington Herald-Leader*, other state newspapers, and other information sources.

The Learning Activity:

- *Introducing the activity*: Through research students will investigate tobacco production, its effects on the Kentucky economy and on human health.

- *Executing the activity*: Divide the class into groups of 4-5 students to investigate the following categories in the production and distribution of tobacco as well as its effects on people's health. Encourage them to use visuals as much as possible (i.e., pictures, graphs, maps, samples):

  - Growing conditions: historical background, rainfall, soil, growing season, farm size, yield
  - Human labor: planting, setting, cultivating, suckering and spraying, cutting, curing, stripping
  - Marketing and auctioning: income, market location, season
  - Manufacturing: processes, products, plants, employment, income generated
  - Health hazards

  Following completion of research, each group will present its findings to the class. Using the data on burley tobacco estimates (Table 4), students will make a choropleth map. Distribute newspaper articles such as "Life Without Tobacco" for students to read. After students have read the article, discuss what effects a ban on tobacco would have on Kentucky. Be sure to point out both positive and negative consequences.

- *Concluding the activity*: Ask students to write essays in which they make suggestions as to what crops tobacco farmers could raise to replace income lost from tobacco's decline.

- *Evaluating the activity*: Students should establish a rubric and critique the group reports; teacher evaluation of map accuracy; teacher designed evaluation for grading essays.

Table 4: Burley Tobacco - County Estimates, 1991

District and County	Acres Harv.	Yield Harv. Acre	Production
		(Pounds)	
Ballard	1,450	2,130	3,087,000
Calloway	290	1,890	548,000
Carlisle	250	2,150	537,000
Graves	450	1,935	871,000
Hickman	27	1,630	44,000
Lyon	240	2,030	487,000
McCracken	543	2,330	1,266,000
Marshall	240	1,945	467,000
Trigg	900	1,700	1,532,000
Other Counties	10	1,800	18,000
DISTRICT 1	4,400	2,013	8,857,000
Caldwell	560	1,890	1,057,000
Christian	3,250	2,110	6,850,000
Crittenden	23	1,825	42,000
Daviess	3,230	2,275	7,351,000
Hancock	1,200	1,990	2,389,000
Henderson	400	1,875	750,000
Hopkins	200	1,660	332,000
Logan	1,720	2,115	3,640,000
McLean	720	2,085	1,501,000
Muhlenberg	485	1,895	918,000
Ohio	1,250	2,055	2,571,000
Simpson	1,075	2,235	2,404,000
Todd	1,310	2,185	2,864,000
Union	7	2,000	14,000
Webster	170	1,980	337,000
DISTRICT 2	15,600	2,117	33,020,000
Adair	2,400	2,070	4,965,000
Allen	1,800	2,165	3,896,000
Barren	5,650	2,320	13,112,000
Breckinridge	3,910	2,030	7,928,000
Bullitt	690	2,105	1,454,000
Butler	400	1,985	794,000
Casey	3,560	1,885	6,710,000
Clinton	1,290	1,875	2,417,000
Cumberland	1,420	1,915	2,717,000
Edmonson	980	1,955	1,914,000
Grayson	2,180	2,000	4,356,000
Green	3,110	2,100	6,532,000
Hardin	2,270	2,190	4,968,000
Hart	4,720	2,045	9,653,000
Jefferson	240	2,165	519,000
Larue	1,600	2,320	3,708,000
Marion	2,900	2,185	6,330,000
Meade	880	2,170	1,908,000
Metcalfe	2,760	2,200	6,074,000
Monroe	1,800	2,395	4,312,000
Nelson	2,300	2,060	4,740,000
Russell	2,040	1,945	3,963,000
Taylor	2,710	2,110	5,720,000
Warren	2,990	2,125	6,357,000
DISTRICT 3	54,600	2,107	115,047,000
Boone	1,510	2,390	3,609,000
Bracken	3,210	2,465	7,909,000
Campbell	330	2,445	807,000
Carroll	2,020	2,235	4,510,000
Gallatin	1,100	2,350	2,587,000
Grant	2,860	2,420	6,925,000
Henry	4,710	2,370	11,158,000
Kenton	700	2,165	1,515,000
Oldham	680	2,350	1,598,000
Owen	4,030	2,220	8,938,000
Pendleton	2,500	2,370	5,923,000
Trimble	2,050	2,260	4,634,000
DISTRICT 4	25,700	2,339	60,113,000
Anderson	1,640	2,060	3,380,000
Bath	3,510	2,040	7,164,000
Bourbon	5,570	2,155	12,003,000
Boyle	2,130	2,215	4,722,000
Clark	3,500	2,125	7,442,000
Fayette	4,920	2,255	11,085,000
Fleming	3,800	1,855	7,052,000
Franklin	2,560	2,195	5,616,000
Garrard	3,660	2,095	7,674,000
Harrison	4,470	2,270	10,151,000
Jessamine	3,000	2,245	6,742,000
Lincoln	3,290	2,165	7,126,000
Madison	5,060	2,215	11,203,000
Mason	4,730	2,230	10,542,000
Mercer	3,000	2,195	6,589,000
Montgomery	3,490	2,105	7,339,000
Nicholas	2,780	2,155	5,985,000
Robertson	1,300	2,120	2,756,000
Scott	4,560	2,105	9,598,000
Shelby	5,400	2,385	12,878,000
Spencer	2,000	2,210	4,420,000
Washington	3,050	2,230	6,804,000
Woodford	4,580	2,385	10,916,000
DISTRICT 5	82,000	2,185	179,187,000
Boyd	30	2,000	60,000
Breathitt	700	1,875	1,311,000
Carter	1,990	2,040	4,057,000
Clay	1,500	1,900	2,848,000
Elliott	1,410	1,945	2,741,000
Estill	800	1,865	1,490,000
Greenup	1,100	2,050	2,257,000
Jackson	1,610	1,965	3,165,000
Johnson	390	1,855	723,000
Knox	485	2,065	1,001,000
Laurel	2,300	1,945	4,472,000
Lawrence	392	2,010	787,000
Lee	390	1,740	679,000
Leslie	30	1,900	57,000
Lewis	2,860	2,165	6,195,000
McCreary	50	1,520	76,000
Magoffin	1,000	1,835	1,837,000
Menifee	850	1,970	1,674,000
Morgan	2,350	2,030	4,770,000
Owsley	950	1,875	1,781,000
Perry	29	1,860	54,000
Powell	500	1,930	966,000
Pulaski	3,510	2,070	7,262,000
Rockcastle	1,580	2,095	3,313,000
Rowan	940	2,150	2,020,000
Wayne	1,450	2,255	3,270,000
Whitley	345	2,010	693,000
Wolfe	1,150	1,870	2,149,000
Other Counties	9	2,000	18,000
DISTRICT 6	30,700	2,011	61,726,000
STATE TOTAL	213,000	2,150	457,950,000

Top Counties in Yield (Lbs)	
Bracken	2,465
Campbell	2,445
Grant	2,420
Monroe	2,395
Boone	2,390

1/Preliminary.

Source: Kentucky, Agricultural Statistics Service, 1993, p. 24.

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Studying Land Use through City Directories

Kate Greer Fischer

(adapted from a lesson by Bridget Strickler of the Kentucky Alliance Institute, 1993)

Introduction: This lesson requires students to examine maps and data of designated blocks of the downtown area of Lexington. They will discover drastic changes in land use of the city and could apply the same techniques to their own communities.

Grade Level: Grades 9-12

Time Required: 1-2 hours

Themes/Key Ideas: Location, place, human-environment interaction, movement, region

Vocabulary: absolute and relative location, Central Business District (CBD), Central Office District, central place, planning, site and situation, time-space, centrifugal and centripetal forces

Objectives:

- Students will look at spatial change over time and space using geographic skills and resources.
- Students will evaluate the influence of geographic factors on real-life issues by using a City Directory.

Skills:

- Acquiring data about people's geographic activities and the human and physical characteristics of places.
- Preparing maps using area and point data.
- Preparing well-constructed interpretive oral and written reports to accompany maps, graphics, and other geographical data.

Materials:

- Large drawing paper
- Rulers
- Index cards, each with a schematic drawing and addresses of present businesses along one block of a central downtown Lexington street.
- City Directories for different decades (for Lexington the following could be used: *Polk's Lexington Street and Avenue Guide 1965; 1975 Lexington City Directory; Polk 1992 Lexington Kentucky City Directory*)
- Markers
- Map of downtown Lexington (see Fig. 7)

The Learning Activity:

- *Background*: The different city directories (for 1965, 1975, and 1992 in this activity) are good sources of information to illustrate changes in the makeup of the CBD. The blocks could just as easily have been those in another city or neighborhood. These years were selected because of changes that occurred within Fayette County that have affected the downtown area.

- *Introduction:* Like most cities in the United States, Lexington's CBD has changed drastically in the last 30 years. Until the 1960s it was a thriving commercial hub. Because of its relative location (within a 15 to 30 minute walk from the University of Kentucky), students frequented both the retail stores and movie theaters. In 1967, the first shopping mall (Turfland) was built in Fayette County, and this was followed by other shopping centers. As people began to shop at malls closer to home and with easy parking, attempts were made in the 1980s to lure shoppers back to the downtown area through construction of Rupp Arena, hotels, office buildings, and through redesigning and renovation of existing buildings into a galleria (Festival Market Place). Buildings were demolished and replaced by new and larger ones. By examining data, students may draw conclusions as to how land use changed and the reasons for that change.

- *Executing the activity*:
  - ☐ Divide class into collaborative learning groups of 4-5 students.
  - ☐ Provide each group with one of the pre-prepared index cards.
  - ☐ Have groups investigate the historic land use of the addresses listed on their card by using City Directories from two different decades.
  - ☐ Direct students to draw maps of the same side of the block for three decades. Note: They do not have to list every attorney or store in each building. They could list "attorneys" and "specialty stores." Students should also note if a building shows a large number of vacancies, or if it has been demolished.
  - ☐ Direct students to draw a fourth map and predict what the block will look like in 2010.
  - ☐ Students should develop a theory explaining why the land use has or has not changed and why it will look as they have represented it in 2010.

- *Concluding the activity:* The entire class should discuss the changes in the CBD and debate as to whether the correct term should be COD (Central Office District). Direct students to write essays on the Future of Downtown Lexington and strategies that might be used to revitalize downtown Lexington. Encourage them to include maps, depictions of future urban landscapes, future city skylines.

- *Evaluating the activity*: Teacher or student designed evaluation to assess the culminating essay.

Black Settlement Patterns in the Bluegrass

Kate Greer Fischer

Introduction: This learning activity is about the settlement patterns of African-Americans before and after the Civil War. It is based on three articles written by Karl Raitz, Peter Smith, and John Kellogg (see "Further Readings and References Cited" section; the journals are available in libraries or articles can be obtained by writing Professor Karl Raitz, Department of Geography, University of Kentucky, Lexington, KY 40506).

Grade Level: Grades 9-12

Time Required: 1 to 2 periods

Themes/Key Ideas: Location, place, human-environment interaction, movement, region

Vocabulary: absolute and relative location, accessibility, scale, ethnicity, segregation, neighborhood, settlement, land use, immigration, migration, transportation, agriculture, enclave, spatial interaction

Objectives:

- Students interpret events using an historical perspective.
- Students use geographic sources of information and data.
- Students analyze relationships among people, places, and events using geographic skills and resources.
- Students evaluate the effects of geographic factors on real-life issues.

Skills:

- Students will be able to identify distance and direction information from maps.
- Students will prepare well-constructed interpretive oral and written reports to accompany maps, graphics, and other geographical data.
- Students will interpret maps, including point, line, and area spatial patterns and will compare spatial patterns in order to propose relationships.

Materials and References (see "Further Readings and References Cited" section and appropriate maps included):

- Various maps showing Negro enclaves and settlement patterns and statistics on Negro settlement from the articles by Kellogg (1977), Kellogg (1982), and Smith and Raitz (1974).
- Map of highways in Bluegrass area (Fig. 4).

The Learning Activity:

- *Background*: This lesson requires students to examine two different types of settlement patterns by African-Americans in the Bluegrass area, urban and rural. Students will then make some observations about movement and settlement patterns.

- *Introduction*: If one examined a demographic breakdown showing housing patterns of the Bluegrass area, a conclusion might be that the region is similar to other such areas in the southeastern United States. Most people assume that African-Americans inhabit poorer areas of the inner city. If the situation is examined more carefully, it will be found that this is only partially true in the Bluegrass. There are numerous African-American enclaves found in areas adjacent to cities like Lexington and Louisville.

  John Kellogg has written two articles (1977, 1982) on black residential patterns within the city of Lexington. One of the articles compares Lexington with Atlanta. His findings show that before the Civil War, many blacks could be found living in alleys behind the mansions of their owners who occupied the choice lots along Main Street, Broadway, and Limestone. Other choice areas included Maxwell, High, Second, and Short Streets. There were also settlements of free blacks, who had purchased their freedom because of their trade skills. They lived near railroad tracks, cemeteries, bottom lands, or on the outskirts of town near newly constructed factories. After the Civil War, many blacks tried to migrate to the cities in search of employment. Even though there was a need for labor, the whites were determined to keep black residential concentrations small.

  The article by Peter Smith and Karl Raitz (1974) on "Negro Hamlets and Agricultural Estates in Kentucky's Inner Bluegrass" explains that rural enclaves were created after the Civil War by owners of estates. Many wanted to avoid paying taxes on land, so it was subdivided and sold to the Freedman. This enabled the Freedman to have a home and also provided the estate owner with a labor supply. These enclaves are still present today, although economic conditions have changed. When the estate-owners left, black workers had to find employment elsewhere or subsist on their own land.

- *Executing the activity*: Divide the class into pairs and give each a set of maps and charts. Have them answer the following questions:

  □ Using the various maps of Lexington, answer the following:

  1. Where are most black settlements located? *(along railroad track, bottom lands, on outskirts of town)*
  2. Are the patterns similar or dissimilar to those of Atlanta? *(similar)*
  3. Which black urban clusters in Lexington are without stores within 3 miles (4.8 km)? *(Adamstown, Taylortown, Brucetown)*
  4. Which black urban clusters in Lexington have a school within 3 miles or 4.8 kilometers? (*Goodlowtown, Davis Bottom*)

- ☐ Using the map showing Negro hamlets in Kentucky's Inner Bluegrass Region, answer the following:
  1. Locate Keene. Before the automobile, how long would you expect it to take to travel by buggy from Keene to Lexington? (*1 day*)
  2. How far is Keene from the county seat of Jessamine County? (*6 miles or 9. 7 kilometers*)
  3. How far is Watkinsville from the county seat of Scott County by road? (*13-14 miles or 21-23 kilometers*)
  4. Suppose that you lived in Hall in 1870. The owner of the estate upon which you worked abandoned his estate because of high taxes. Where would the nearest town be where you might seek employment? (*Nicholasville*) How far would it be as the crow flies? (*7 miles or 11.2 kilometers*) How far by road? (*Keene is 14 miles or 23 kilometers*)
- ☐ Using the table "Bluegrass Negro Hamlets, by Origin and Occupational Orientation, 1972," in Smith and Raitz (1974) answer the following:
  1. Which county had the largest number of hamlets in 1972? (*Fayette, 13*)
  2. Which hamlet had the highest percentage of heads-of-household employed on estates? (*Dixontown*)
  3. Which two counties had no heads-of-households employed on estates? (*Clark and Madison*)
- ☐ Using the figures "The Antebellum Bluegrass Estate" and "The Contemporary Bluegrass Estate," answer the following:
  1. What differences are there between the two figures? (some answers: *Antebellum estates raised hemp used for rope and cloth. Burley is grown today, rather than dark tobacco. No wheat today. Slave quarters were in the center of the antebellum estate; Negro hamlet is located on outskirts of today's estate. No dairy operations today. Hay and clover are grown today. Owners do not use a garden today. The horse operation is much more elaborate today. Roads have been built today. There is no smokehouse today. Today, cattle are raised for beef and not milk.*)
- ☐ Have students examine road maps of Kentucky today to determine how much easier it would be to travel from one of the rural enclaves to the county seat. Speculate on the kinds of job opportunities that might be present today.

- *Concluding the activity*: Ask students to write an essay on the following: I believe that life would have been more difficult for African-Americans who lived in urban (or rural) areas in the Post Civil War period for the following reasons...

- *Evaluating the activity*: Teacher or student designed evaluations.

The Horse Industry in Kentucky

Kate Greer Fischer

Introduction: When one hears the word Kentucky, chances are that one or more of the following images come to mind: tobacco, bourbon, Mammoth Cave, or race horses. This lesson is on the horse industry.

Grade Level: Grades 4-8

Time Required: 2-3 days

Themes/Key Ideas: Location, place, human-environment interaction, movement, region

Vocabulary: absolute and relative location, agriculture, culture, climate, weather, primogeniture, cultural baggage

Objectives:

- Students will explain the influence of geographic factors on human movement.
- Students will analyze geographic characteristics to explain human and regional relationships.
- Students will evaluate the influence of geographic factors on real-life issues.

Materials:

- Information cards (as shown following this section)
- Blank film strip sections
- Markers
- Film strip projector (preferably old type)
- Scotch tape to tape sections together

The Learning Activity:

- *Introducing the activity*: By using the information cards (or through research), students will generate filmstrips to present to the class on the horse industry in Kentucky.

- *Executing the activity*:
  - Divide class into groups of 4 students.
  - Distribute information cards to each group (or assign research on each topic).
  - Distribute filmstrip sections and markers.
  - Students will draw and color their filmstrips and be prepared to present their segment to the rest of the class.
  - Each group will make up two questions regarding their segment that can be answered briefly.

- *Concluding the activity*: In addition to the student-generated quiz, the film itself is the concluding activity.

- *Evaluating the activity*: Student critiques of presentations.

Information Cards: Each card should have one of the following topics:

TYPES OF HORSES IN KENTUCKY

(supplement this with information or pictures of each horse type)

- Arabians
- Hunters and jumpers
- Quarter horses
- Standard bred (harness racing)
- Tennessee Walking Horses
- Thoroughbreds

FACTS ABOUT THE THOROUGHBRED INDUSTRY IN KENTUCKY

- Kentucky produces between 8,000-9,000 of the nation's 49,000 foals annually.
- The industry employs more than 79,000 people in the state.
- The thoroughbred industry generates more than $1.3 billion in wages and salaries (4.5 percent) of the total in the state.
- In the phone book, the Lexington *Yellow Pages* contains five pages of horse-related businesses (farms, horse brokers, horse transportation companies or van manufacturing firms, saddle makers, veterinarians).

HISTORICAL DATA

- American beginnings in Virginia and Maryland in the 1730s.
- Migrations into Bluegrass in 1780s by second sons (primogeniture); gentry brought their fine horses and taste for racing with them (cultural baggage).
- Civil War took its toll on the horse industry; the horses were used by cavalries of both sides.
- Revived quickly after Civil War. There were 17 race tracks.
- After the Civil War, blacks dominated the horse industry as trainers and jockeys.

ENVIRONMENTAL CIRCUMSTANCES FAVORABLE TO HORSES

- Deep, phosphate-rich Ordovician limestone created fertile soils good for lush grass growth.
- Long growing season (grass nine months of year).
- Mild winters and not extremely hot summers: will not endanger new-born foals; training can continue practically year round.
- Seasonal movement of racing (starts in Florida and Louisiana in winter, moves to Arkansas in March, Keeneland by April, Louisville by May, Baltimore in late May/June, then New York, moves back to Kentucky in October and in November back to Florida and Louisiana for the winter).

COSTS OF RACE HORSE INDUSTRY

- Farm land may cost $10,000 per acre.
- Horse barns may cost $500,000 (includes sprinkler system, floors that drain well).
- Breeding stock—$100,000 per animal or more.
- Breeding fees—up to $100,000, or more.
- Insurance, feed, employees cost tens of thousands of dollars per horse farm.
- Fences—$10,000 per mile (or 1.609 km).

On the Road Again...

Kate Greer Fischer

Introduction: The Toyota Motor Manufacturing Company, located in Scott County, is the largest Japanese automobile plant in the United States. It has drastically changed the area, creating 5,200 jobs a year. It is one of four automobile or truck plants in the state. Two Ford plants are in Louisville and the Corvette plant is in Bowling Green.

Grade Level: Grades 4-12 depending on which activities are used and how they are used.

Time Required: 2-5 hours

Themes/Key Ideas: Location, place, human-environment interaction, movement

Vocabulary: scale, commute, shipping costs, point of entry, suppliers, accessibility, absolute and relative locations, distribution, network, spatial interaction, trade, transportation, infrastructure, multiplier effect

Objectives:

- Students will learn that the manufacture of an automobile has become a global process.
- Students will become aware of the widespread effects of the Toyota plant on Kentucky.
- Students will learn to analyze and evaluate geographic considerations in making decisions.
- Students will learn a variety of ways to identify absolute and relative location.
- Students will examine the interaction between people and their environment and predict trends.
- Students will analyze relationships among people, places, and events using geographic skills and resources.

Skills:

- Students work with distance, scale, and map symbolization.
- Students demonstrate how humans interact within and between the state, nation, and world.
- Students prepare graphs including title and source of data and labeling categories.

Materials:

- Maps (Figs. 4 and 11)
- Graphs (Fig. 5) and tables (Tables 1 and 2)
- Outline maps of Kentucky
- Markers or colored pencils
- U.S. road atlas

The Learning Activity:

- *Background*: The automobile industry has been of great economic importance to Kentucky, creating thousands of jobs and generating much money through the multiplier effect. Not only have the automobile assembly plants themselves created jobs on the site, they have also stimulated other jobs for people who work for the suppliers of these companies. Forty Toyota suppliers are located in Kentucky; of these, nine are owned by Japanese; seven are jointly-owned U.S.-Japanese companies.

- *Executing the activity*:
  - ☐ Divide class into pairs of students. Distribute outline maps of Kentucky and have students locate major cities. Ask students if they know where the Ford Motor Company truck plant, the Corvette plant, and Toyota plant are located. Have them locate Louisville, Bowling Green, and Georgetown respectively.
  - ☐ Give students the maps showing Toyota suppliers and highways. Have students determine the best routes to ship these goods to Georgetown based on distance (they will have to use scale).
  - ☐ Give students various charts showing population growth. Ask if there is a connection between locating an automobile plant and the population growth of counties and cities. Have students graph the data showing population growth. Have them determine the routes that workers would take to get to the plant from the various nearby towns.
  - ☐ Assign students the task of visiting a car dealer. Tell them to read the sticker to determine: where the car was assembled, what the shipping costs were, the point of entry (if a foreign car). Using a U.S. road atlas, have them determine the best route of this vehicle to their town.
  - ☐ Discuss with the class the possible reasons Toyota located in Georgetown (e.g., near a state university, state government incentives like the $100 million offered by the state, lower property taxes, proximity to larger cities like Cincinnati and Louisville, large market, proximity to major highways and railroad tracks, lower labor costs).

- *Concluding the activity*: Brainstorm the positive and negative effects of Toyota on Scott County, Georgetown, and Kentucky. For example, positive effects include the $180 million payroll and provision of 20 percent of the tax revenues in Scott County. A negative effect includes the increased stress on infrastructure such as highways, schools, and sewers. Ask students to write an essay on the following topic: Assume that a Japanese business or company wanted to locate a major automobile assembly plant in your community. What changes would occur in your area? Include good and bad changes. What incentives might your community offer to lure the company? What are the reasons the company might or might not consider your community? Why don't communities create their own businesses instead of trying to recruit business from foreign companies?

- *Culminating activity*: In groups of two or three, have students make a proposal or advertisement to convince the Japanese to locate in their community.
- *Evaluating the activity*: Student critiques of the culminating activity.

KENTUCKY'S COUNTIES

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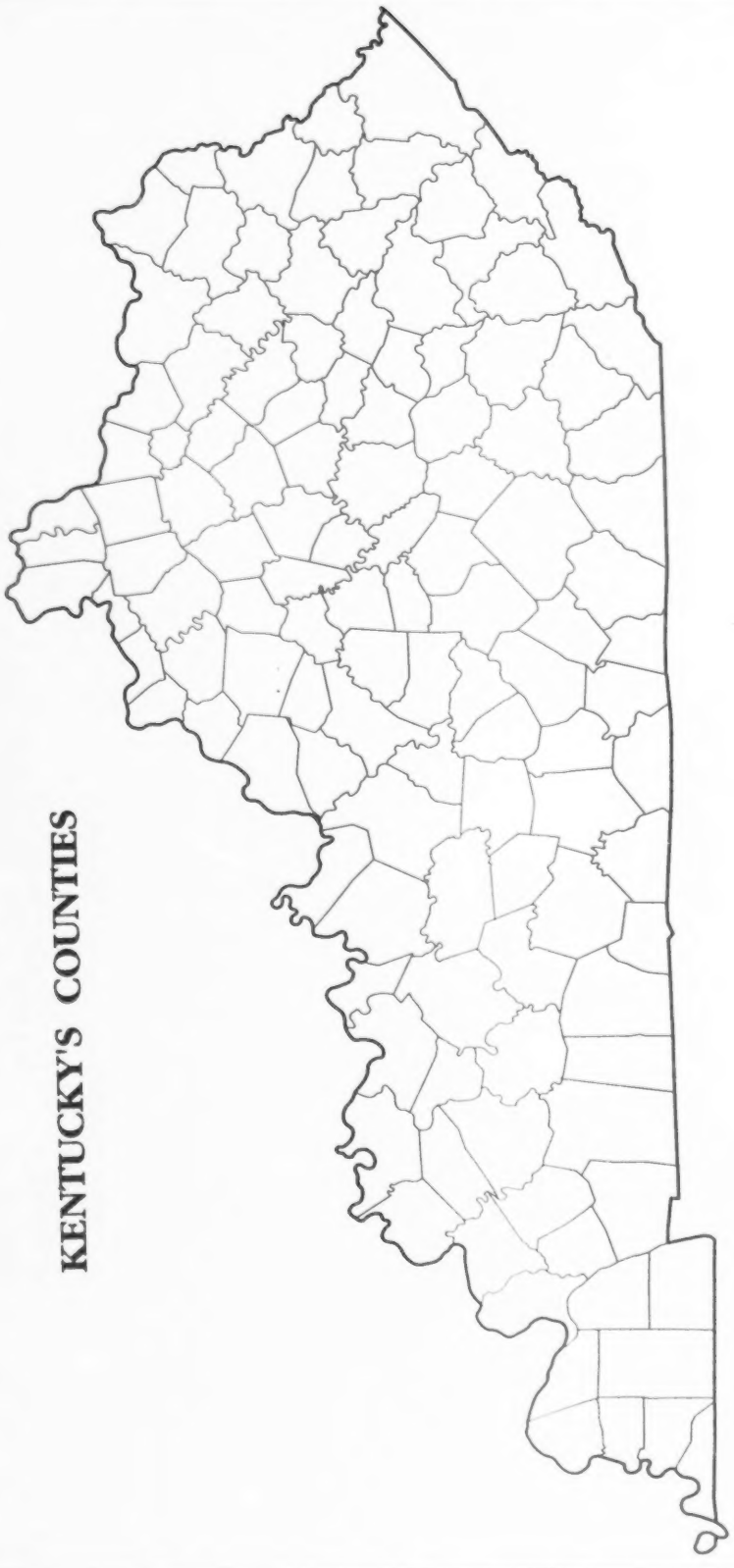

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